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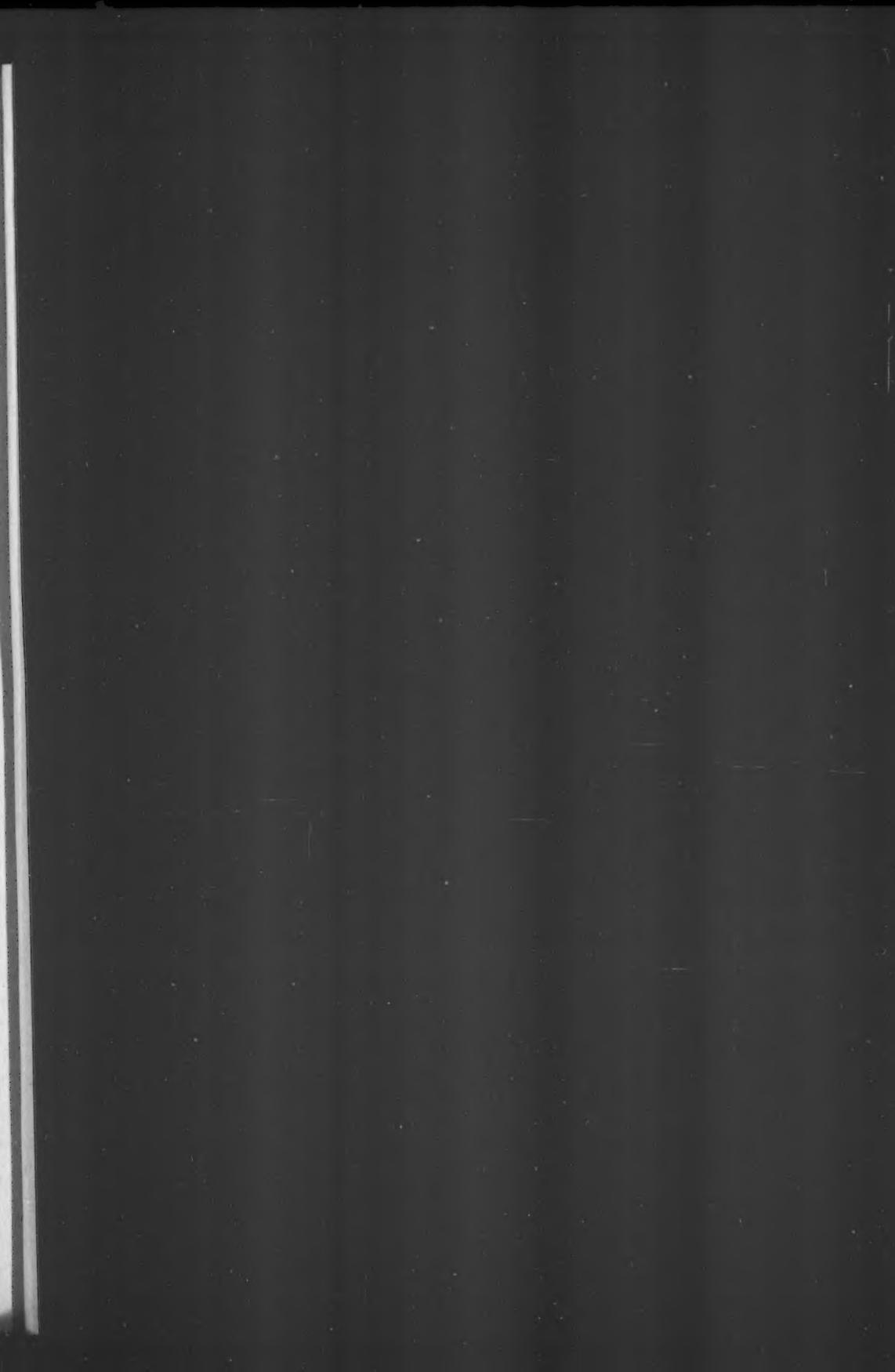
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A SYNOPSIS OF OUR KNOWLEDGE CONCERNING THE FOSSIL BIRDS OF THE PACIFIC COAST OF NORTH AMERICA

By LOYE MILLER

PREVIOUS to the discovery of the Pleistocene beds at Rancho La Brea only three localities on the Pacific Coast of North America had yielded any information regarding fossil birds. Of these three localities two were represented by but a single bone each.

Since the exploration of the Rancho La Brea deposits brought out the importance of the subject, avian fossils from four other localities have been studied, making thus a total of eight different horizons which now contribute to our knowledge of the birds of previous geological time.

In 1894 Cope (1) described the new pelecanid form *Cyphornis magnus* from a single bone taken in the Eocene of Vancouver. This specimen probably represents the largest known bird of flight.

Lucas (2) in 1901 described from the upper Miocene of Los Angeles the flightless diver *Mancalla californicus*, represented by the major part of a humerus.

All the other known specimens are from the Pleistocene of Oregon and California. Fossil Lake in Oregon is a lacustrine deposit. The Rodeo formation on San Francisco Bay is littoral marine, three localities in middle and northern California furnish cavern deposits, while the great mass of material from Rancho La Brea represents animals entrapped in soft asphalt.

The Fossil Lake beds yielded to Cope (3), to Shufeldt (4) and to Miller (5) fifty-two species of birds, the large majority of which were recorded by Shufeldt. Of these species 67.3 per cent are still living. All except one belong to recent genera.

The results thus far published on the Rancho La Brea collections by Miller

(6, 7, 8, 9) yield twenty-three species, all but eight of which still live. Three new genera of Raptore are represented and one new family is represented by the anomalous *Teratornis merriami*.

The discussion of the other four horizons is still in manuscript by Miller, and further study is required before publication. Results which are conclusive, however, though thus far unpublished would raise the number of fossil species known to the coast to the total of one hundred and fifteen. Of these 19.1 per cent are now extinct.

Anomalies in distribution are noticeable in the record of *Phoenicopterus* in Oregon by Shufeldt, and of *Sarcorhamphus*, *Catharista*, *Pavo*, *Ciconia* and *Jabiru* from Rancho La Brea by Miller. It will be noticed that most of these anomalies are cases of genera now more southern in their distribution.

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A COLLECTION OF WINTER BIRDS FROM TRINITY AND SHASTA COUNTIES, CALIFORNIA

By LOUISE KELLOGG

IN FEBRUARY of this year Miss Alexander and the writer undertook a month's trip into Trinity County, partly as a preliminary survey for further work during the summer, and partly because we wanted to see how much and what kind of a collection of birds and mammals a person could make in the mountains in the winter. Hopes were entertained of getting all sorts of unusual birds that might come there as winter visitants, and in one respect at least these hopes were realized in the finding of the Bohemian Waxwing. Then, too, we had an interest in seeing what the winter pelage of such small mammals as do not hibernate might be.

We went from Redding by stage to Weaverville over the snow-covered Trinity divide, and hearing there that a good trapper was working at Helena we went on some eighteen miles farther to that town, if such it may be called, which is situated at the junction of the Trinity River and its North Fork. The town consisted merely of a hotel, a store and a couple of houses, and it was interesting to find that it was a settlement of native sons and daughters, whose parents had been drawn there by the gold excitement of earlier days. The narrow canyon of the North Fork opens out enough to make a little farming possible; but the wooded hills are close on every side and higher mountains are in sight just beyond. The life zone was considered high Upper Sonoran, some of the principal trees and shrubs being

the digger pine, Douglas fir, oaks, ceanothus and poison oak. After some cold, snowy days, the weather was delightful and we put in two weeks here, devoting most of the time to getting small mammals, but meanwhile collecting and observing birds.

From Helena we went back by way of Weaverville and stopped off at Tower House, in Shasta County, at the lower end of Clear Creek valley and about eighteen miles from Redding. It stormed during most of our week's stay but we managed to get enough specimens to keep busy. As a result of the trip we have decided that winter collecting in the mountains is very enjoyable as well as very much worth while.

All of the specimens were collected for the Museum of Vertebrate Zoology of the University of California, and the numbers where cited are those of the bird collection in that institution.

Oreortyx picta picta. Mountain Quail. Quite numerous at Helena on dry, brushy south slopes. Specimens taken, nos. 17299-17302, are distinctly of the coast form.

Lophortyx californica vallicola. Valley Quail. One flock was seen each time we passed a certain wild rose thicket on the road, near a ranch about four miles above Helena. The one specimen taken, no. 17303, is unquestionably *vallicola*. At Tower House they came close around the buildings and were seen feeding with the chickens.

Dendragapus obscurus fuliginosus. Sooty Grouse. Some were seen on the high ridges at Helena by the trapper, Mr. Knowles; but the two specimens obtained, nos. 17304, 17305, were sent by him from Hay Fork, in the southern part of the county, after our return. These specimens are clearly of the northwest coast race.

Astur atricapillus striatus. Western Goshawk. One adult specimen, no. 17306, sent in from Hay Fork by Mr. Knowles.

Dryobates villosus hyloscopus. Cabanis Woodpecker. An example, no. 17307, was shot by one of the men in the orchard at Helena.

Dryobates pubescens gairdneri. Gairdner Woodpecker. Two specimens taken, one, no. 17308, at Helena, and one, no. 17309, at Tower House; in size and dark coloration of the breast these both resemble more closely typical *gairdneri* than the lighter form *turati*.

Sphyrapicus ruber daggetti. Red-breasted Sapsucker. Reported common during the summer, the trees in the orchard bearing abundant evidence of their presence. Two specimens taken at Helena, nos. 17310, 17311.

Phloeotomus pileatus abieticola. Northern Pileated Woodpecker. One was seen by Mr. Knowles at Helena, and he afterwards sent in one from Hay Fork.

Colaptes cafer collaris. Red-shafted Flicker. Very common at Tower House where they fed on the ground in the orchard.

Sayornis nigricans. Black Phoebe. Only one seen, at Tower House, March 2.

Cyanocitta stelleri frontalis. Sierra Nevada Jay. Not particularly numerous. The two taken, nos. 17316, 17317, at Helena, are not exactly *frontalis*, being clearly intermediate in coloration towards *carbonacea*.

Aphelocoma californica. California Jay. Only two or three noted.

Hesperiphona vespertina montana. Western Evening Grosbeak. We saw none at all ourselves but on our return through Weaverville Mr. Hupp gave us one specimen which he had shot out of a large flock in the trees in front of his house. He had been born and raised in Weaverville, and had been in all parts of the

county both summer and winter, and said he had never seen these birds before. The specimen, no. 17319, is peculiar in having the whole back of the head yellow, instead of the usual restricted frontal band of that color.

Carpodacus purpureus californicus. California Purple Finch. Seen only at the ranch four miles above Helena.

Spinus pinus. Pine Siskin. A large flock was seen once at Helena, another in crossing the Trinity divide beyond Lewiston, and another at Tower House.

Passer domesticus. English Sparrow. These birds have invaded Weaverville, which is fifty-five miles from the railroad; and a small colony was preparing to nest at Tower House.

Zonotrichia coronata. Golden-crowned Sparrow. Seen in flocks together with the Intermediate Sparrow, but not as numerous as the latter.

Junco oreganus thurberi. Sierra Junco. Large flocks of juncos were common everywhere.

Melospiza melodia merrilli. Merrill Song Sparrow. Four specimens, one from Helena and three from Tower House, have been referred to this species rather than to *rufina* on account of the heavy, blackish streakings of the back, and the less diffused and darker streaking of the breast; they are also slightly grayer dorsally than *rufina*. In as much as they exhibit some tendency toward the more narrow and sharply defined streaking of *montana*, this may be considered as further evidence that there is intergradation between *montana* and *rufina*, the name *merrilli* having been applied to some such intergradient form.

Melospiza melodia rufina. Rusty Song Sparrow. Seven specimens, three from Helena and four from Tower House. Compared with breeding birds from Vancouver Island which have been referred to *rufina*, they are practically identical although according to the currently stated distribution of *morphna* they should be that form. In view of the facts that the two previously recognized forms (*rufina* and *morphna*) are attributed to parts of the same geographic area, and that no appreciable differences are to be found, throughout the whole area, it is to be inferred that there is only one form—*rufina*.

Passerella iliaca unalaschensis. Shumagin Fox Sparrow. One specimen, no. 17351, from Helena.

Passerella iliaca meruloides. Yakutat Fox Sparrow. Fox Sparrows were quite numerous at Tower House in manzanita brush along the edge of an irrigation ditch. One example of this form taken, no. 17352.

Passerella iliaca megarhyncha. Thick-billed Fox Sparrow. Most common.

Pipilo maculatus megalonyx. Spurred Towhee. More towhees were seen at Tower House than at Helena; at the latter place the two kinds were quite common.

Pipilo crissalis crissalis. California Brown Towhee. Seen at the ranch four miles above Helena, but more numerous at Tower House. The three specimens preserved, nos. 17359-17361, are slightly grayer and larger than *crissalis* from the San Francisco Bay region. There may yet be found sufficient grounds for the recognition of a northern form, *P. c. carolae* McGregor (Bull. Cooper Orn. Club I, 1899, p. 11), though the material as yet available does not warrant it.

Bombycilla garrula. Bohemian Waxwing. It was a great pleasure and surprise to encounter this picturesque bird. A large flock was seen near Tower House on our way in to Weaverville and a dead one picked up in the road; also on our return we saw at Tower House what was presumably the same flock. At Helena the birds came in to the orchard in the afternoon to feed and roost for the night in the trees. They seemed especially fond of the rotten apples left on the trees or fallen

on the ground, and they showed so little fear that it was possible to approach within a few feet of them, and when one got too close they would only fly up into the trees nearby. They kept up an incessant soft twittering noise, and for several days we had excellent opportunities for observing them at close range, until the throwing of some apples into their midst caused them to fly off, and they did not return before we left. Nine specimens were preserved, nos. 17362-17370.

Vireo huttoni. Hutton Vireo. Only seen once at Helena, mingling with a flock of chickadees.

Thryomanes bewickii drymoecus. San Joaquin Wren. Not at all common; specimen taken at Helena, no. 17372, is slightly darker than average *drymoecus*, being somewhat intermediate towards *calophonus*.

Baeolophus inornatus inornatus. Plain Titmouse. Several noted at Tower House.

Penthestes rufescens rufescens. Chestnut-backed Chickadee. Quite common at Helena.

Chamaea fasciata henshawi. Pallid Wren-tit. Less numerous at Helena than Tower House, where their song was most noticeable on bushy hillsides. A series of fourteen was taken, nos. 17376-17389. It is interesting to note that these are the very light interior form rather than, as would seem more natural, the darker coast form.

Psaltriparus minimus minimus. Bush-tit. One flock was seen at Tower House and three specimens were taken. Near topotypes examined, from Salem, Oregon, show a light pileum but the back and breast not appreciably so. Specimens from Pasadena have pileums as light as the topotype; but others are dark and in no case does a decidedly light back accompany the light pileum. Specimens from Horse Creek, Siskiyou Mountains, have a dark pileum like that of those from Tower House, so that, with such a range of variation, it would seem the more reasonable course at the present time to consider the sub-species *californicus* is not well established.

Regulus calendula. Ruby-crowned Kinglet. Not common at either locality.

Myadestes townsendi. Townsend Solitaire. Numerous at Tower House.

Hylocichla guttata nana. Dwarf Hermit Thrush. Seen quite often, so considering their retiring habits they must have been quite common.

Planesticus migratorius propinquus. Western Robin. Common at both localities.

Ixoreus naevius. Varied Thrush. Quite common at both localities, with robins, but not as easily approached.

Sialia mexicana occidentalis. Western Bluebird. Large flocks seen at Tower House.

NESTING NOTES ON THE DUCKS OF THE BARR LAKE REGION, COLORADO

By ROBERT B. ROCKWELL

PART I

THE most important subject which confronted us, when we began a three years' study of the nesting birds of the Barr Lake country north of Denver, was that of determining the status of the different species of ducks as

breeders.* Definite information on the subject, covering the plains region east of the foothills, was practically a negligible quantity. The general impression conveyed by text-books was that the extreme southern limit of the breeding range of most of the ducks lay far to the north of Colorado. Cooke in his final supplement of "Birds of Colorado" gave the first published intimation that this range might eventually be extended far to the south, and our work in this section verified the intimation.

The results of systematic work brought to light many interesting and confusing facts, for we not only encountered many new peculiarities in nesting habits, but were also fortunate enough to collect data which established two species as breeders, whose status had heretofore been undetermined. A few species, e. g., the Mallard, Blue-winged and Cinnamon Teal, Baldpate, Shoveller, Gadwall and Ruddy Duck had already been definitely established as breeders on the plains. Of these we found the two species of teal nesting commonly, in fact the Blue-wings might be



Fig. 37. NESTING SITE OF MALLARD ON MUSKRAT HOUSE

considered abundant breeders; the Ruddy a rather uncommon breeder; persistent searching netted us only two nests of the Mallard and one of the Shoveller, although the birds were present in considerable numbers throughout the nesting season; and the most careful field work failed to reveal a single nest of the Baldpate or Gadwall, although these birds were also fairly common. The Green-winged Teal was seen in some numbers, but we found only one nest which we could assign positively to this species.

One of our most interesting discoveries was that the Pintail, which had hitherto been considered a rather rare breeder in the state, was, next to the Blue-winged Teal, the most common breeding duck in the Barr Lake country.

The most important result of our work, however, was in establishing the Redhead and the Canvasback among Colorado breeding birds. In order to prevent repetition it will no doubt be advisable to arrange the data according to species, rather than to treat the various ducks indiscriminately. In the following notes

* All the notes upon which this paper is based were taken in company with L. J. Hersey.

several species are omitted, as I have endeavored to include in these notes only such data as will add to the general fund of information on this subject.

MALLARD (*Anas platyrhynchos*)

During our numerous trips through the Barr Lake district we found the Mallard one of the commonest ducks. A very large flock wintered on the larger lakes; during spring and fall migration flocks of Mallards were always in evidence, and during the summer months pairs and single birds were quite common. It was therefore rather surprising that despite careful and persistent searching, we found but two nests of this species during three seasons' work. Both of these, however, were quite out of the ordinary and are worthy of description.

On May 11, 1907, while wading out from shore through a sparse, burnt-over



Fig. 38. MALLARD'S NEST ON MUSK-RAT HOUSE, SHOWING DETAILS OF NEST CONSTRUCTION

growth of cat-tails, skirting a small lake, a female Mallard flushed noisily from a large musk-rat house and revealed a beautiful set of eleven eggs deposited in a hollow, scraped in the dead cat-tails and debris forming the house, and well lined with down. The house was very conspicuous, standing over two feet above the surface of the water surrounding it, and the nest was an open one as can plainly be seen from the accompanying illustration (Fig. 37). There was no apparent attempt at concealment. The female flushed when we were fully thirty yards from the nest, and the male swam about well out of gunshot.

A week later (on the eighteenth) we succeeded in approaching to within ten feet of the brooding female, who was in plain sight even from a considerable distance. The nest was in much the same condition as on the preceding visit, but the downy lining was much less in evidence. On the twenty-fourth we found that

the musk-rats had been adding to the house, with the result that the mother bird, in order to keep her treasures from being buried, had been forced to move her nest over toward the edge of the pile. In fact four of the eggs were missing on this date, and we surmised that they had been pushed off into the water during the moving process. A week later (May 31) the house had been built up much higher, and the nest was on the ragged edge of the pile with the eggs apparently far advanced in incubation. On June 8 the eggs had been hatched, and in our examination of the nest we were surprised to find the four missing eggs deeply buried in the debris at almost the exact spot where the nest was located when first found.

A fascinating bit of the family history would have undoubtedly been revealed had we been enabled to observe the attitude of the busy musk-rats toward the brooding mother bird, and the process of moving the nest.

The second nest was found June 13, 1908, over a month later in the spring than the first nest was found. Some slight experience with nesting Mallards in Nevada had taught me to look in high and dry locations for their nests and I was therefore greatly surprised to have a female Mallard flush from almost beneath my feet while crossing a low swale. The nest was built in rather a dense growth of dead cat-tails, tender green shoots and scattered young willows on ground formerly swampy, but at that time almost dry. It was a beautifully built basket-like structure of dried cat-tail blades with very little of the usual down in the lining, and remarkably well concealed. We passed within three feet of the brooding female at least twice before she flushed. During the following week the district was visited by a heavy hailstorm and on our next visit we found that the marsh had filled with water and that the nest had been drowned out and deserted.

BLUE-WINGED TEAL (*Querquedula discors*)

By far the most abundant nesting duck throughout the Barr district was the pretty little Blue-winged Teal. No matter what type of ground our searches carried us over, we were sure to be startled by the occasional flutter of wings, as a dainty little gray-clad mother left her nest like a flash upon our too close approach. We found nests of these birds in the dense cat-tail growth along sloughs, on the soggy, spongy seepage ground under the big dykes, at the edge of beaten paths near the lake-shore, by roadsides back from the water, among the dry weeds and sand of the prairie, far from the water's edge, amid the dense rank grass on a tiny island, in alfalfa fields, on grassy flats, and in cavities in and upon musk-rat houses.

The nests exhibited a wide diversity in construction. The predominating type was a neat basket-like structure composed of fine soft dead grass, sometimes set well into a dense clump of rank grass on the surface of the ground, and sometimes sunken into a cavity until the top of the nest was flush with the surface of the ground. These nests were usually liberally lined with down; much thicker on the sides and rim of the nest than on the bottom. In fact several were examined which had no down whatever underneath the eggs. The quantity of down varied greatly in different nests, but apparently increased in quantity as incubation advanced.

A less common type of nest was made entirely of bits of dead cat-tail blades deeply set into a cavity in the ground. This type of nest was usually found in marshy places, where this material was more available, and in these there was much less of the downy lining. The concealment of these nests was likewise less effective, and taken as a whole this type of nest was altogether inferior. We found a few built in wet places where the foundation of the nest was actually wet, but we did

not find a single nest where the eggs were the least bit damp; and the large majority were in perfectly dry locations in close proximity to water.

The concealment of the better built nests, especially those in the center of a tussock of rank grass, was well nigh perfect; in fact in most cases we were unable to see either the brooding bird or the eggs from a distance of five or six feet even when we knew the exact location of the nest. Upon leaving the nest during incubation the parent covered the eggs with the downy rim of the nest and the concealment thus afforded was remarkable.

We found nests exhibiting every possible degree of skill in construction, but whether the nest was a rude affair of grasses and trash scraped into a little hollow in the ground; or whether it was a beautifully woven basket-like structure deeply set into a soft cradle of rich grass, and luxuriously lined with an abundance of soft gray down from the parent's breast, we invariably encountered the strong mother instinct characteristic of all wild ducks. The brooding parent seldom left her nest until we were within three or four paces of her, and often we approached to within arm's length. In one instance where the parent had become somewhat accustomed to me I actually touched the bird's back before she flushed.

Several farmers living near the lakes told us of killing or maiming the brooding birds with mowing machines while cutting the first crop of alfalfa. This remarkable attachment to the nest is all the more wonderful when one considers the difficulty of getting within gunshot of these birds during the open season, which in Colorado extends to April 5, scarcely more than a month before the birds begin to lay. It is, however, very interesting to note how quickly all the ducks (and more particularly the teal) recognize the protection of the closed season. Late in May one may stroll along the shores of the smaller lakes and watch from one to five hundred ducks swimming about within a hundred yards or so, without exhibiting any particular fear of the intruder, whereas six weeks earlier his distant appearance would be greeted with a roar of wings.

Several radical departures from the characteristic habits were encountered.

One bird had built her nest on a little flat amid some short blue grass which afforded her no concealment whatever. As she brooded her eggs she was plainly visible at a distance of twenty yards or more. She allowed me to approach to within four or five feet and set up my camera for an exposure; and then instead of springing lightly into the air as usual, she ambled awkwardly off the nest, waddled slowly between the legs of my tripod, uttering lazy little quacks of protest, and finally after walking a distance of thirty yards or more took flight.

While ploughing our way through a dense cat-tail swamp in water above our knees we frightened a teal from a nest in a musk-rat house. A careful search finally revealed the eggs fully a foot back from the entrance of a deep cavity in the side of the house. To our surprise the nest contained four eggs of the teal and five eggs of some big duck, all of which were incubated.

Another queer nest was found, which was a shallow depression on the side of a dilapidated musk-rat house, which had been originally built between a fence post and its diagonal brace. The lower barbed wire of the fence prevented the top of the house from collapsing, while the side weathered away, leaving a cavity well protected by the overhanging top. In this cavity without a sign of lining or a bit of concealment lay the ten conspicuous white eggs. They could be readily seen from a distance of twenty yards.

Another beautifully built and concealed nest with eleven eggs was just a fraction less than three feet from a nest where a patient little mother Spotted Sandpiper brooded her four eggs.

One set of nine eggs in a beautifully built nest at the side of a neglected road was visited by some animal which had made a small hole in the side of each egg and had sucked the contents.

The Blue-winged Teal are among the last ducks to arrive from the south in the spring, seldom being seen in any numbers before April first, and the great bulk of the birds arrive about the middle of April. The birds are mated, and the flocks for the most part scattered by the middle of May, and the first signs of nesting are usually found during the third week in May. The earliest complete set found by us was a beautiful set of eleven eggs on May 24, 1908. This nest must have been completed and laying begun by May 13. The average date for complete sets is about June 1. We found complete sets of fresh eggs as late as July 21, from which we infer that a second set is laid when the first one is destroyed. The



Fig. 39. NESTING SITE OF CINNAMON TEAL, SHOWING METHOD OF CONCEALMENT

majority of sets watched by us hatched during the third week in June, but two nests were found from which the young had gone by June 8.

We tried repeatedly to satisfy ourselves that an egg was deposited each day, and finally on June 11 a nest was found containing one egg, and seven days later the same nest contained eight.

The birds were very sensitive to any disturbance of the eggs and on this account we did not dare to handle or touch them, except when absolutely necessary. This prevented us from ascertaining whether or not incubation began after the first egg was laid; but from the fact that the entire clutch usually hatches on the same day and the young ones leave the nest as soon as they are dry, it is highly improbable that the female undertakes the duties of incubation until the comple-

ment is complete. In fact we seldom flushed the parent bird from nests containing incomplete sets, although a good many such were found.

Complete sets ranged in number from seven to twelve. The sixteen nests of which we kept a definite record contained the following sets: one of twelve, six of eleven, one of ten, two of nine, five of eight, and one of seven. These were only a fraction of the total number of nests found, but a fair estimate of the average clutch in all the nests examined would be nine or ten eggs.

The first brood of young birds was found June 22, and on July 5 and 6 several broods of half grown young were seen. The hiding instinct of the ducklings during the downy period is little short of miraculous. One fond mother bird which flushed almost from between my feet in a wet grassy meadow left eight tiny brown balls of down in plain sight within arm's length of me; yet after they had scamper-



Fig. 40. THE SAME NEST AS THAT SHOWN IN FIG. 39 WITH CONCEALING
VEGETATION REMOVED

ed to shelter fifteen minute's careful search brought to light only three babies, although I knew that the remaining five must be hiding within a radius of four or five feet.

When flushed from a brood of young ones the mother bird employs all the arts known to birddom to entice the intruder away from her babies; fluttering through the grass, feigning a broken wing, and uttering low cries, utterly un-duck-like in tone.

The mother duck stays with her brood at least until they are full grown and on the wing. One devoted mother who was surprised by us in a narrow lagoon with her brood of five three-fourths grown ducklings, courageously swam back and forth in front of us, and not twenty-five feet distant, endeavoring to distract our

attention from her charges, while the youngsters, instead of scurrying to shelter seemed rather to enjoy the anxiety of the mother and the excitement of our intrusion.

The young birds learn to fly very slowly, and the shameful slaughter of "flappers" (as the young are called when unable to fly) upon the opening of the hunting season September 10, is another testimonial of the legislative farce of game laws framed by politicians.

CINNAMON TEAL (*Querquedula cyanoptera*)

Owing to the strong resemblance between females of the Blue-wing and Cinnamon Teal, and the rapidity with which they left the nests when flushed, it was extremely difficult to identify the birds as they took flight. We were consequently much handicapped in our study of the Cinnamon Teal, and the total number of nests positively identified as belonging to this species was only four, although we undoubtedly examined many others belonging to this species without being able to identify the parent beyond doubt.

This small amount of data is altogether insufficient to warrant any general statements, but in the four nests examined we were unable to detect any radical departures from the habits already attributed to the Blue-wings except that two of the four nests were in very wet locations, where the eggs were in constant danger of becoming damp. These two nests were practically devoid of the downy lining while the other two nests, which were built in perfectly dry locations were warmly lined with down. The handsomest nest of the four, which was one of the nests on wet ground, was figured in the CONDOR (Vol. XI no. 4, page 112.) and contrasts sharply with the one shown in the accompanying cut, which is one of those in a dry location.

One of the nests was on dry prairie fully one hundred feet back from the shore of the lake amid a fairly thick growth of weeds and grass. This nest which was found May 30, 1908, was well built and warmly lined with down, and the bird was quite fearless. We watched the nest closely and on June 19 were surprised to find that seven of the young birds had pecked through the shell, but had died before clearing the shell around their heads. The other four eggs contained perfectly formed dead embryos which had not begun to pip the shells.

The male birds, however, in their brilliant cinnamon coats were very conspicuous and we were occasionally able, through their actions, to connect them with the nests we had under examination.

Male Cinnamon Teal were common throughout May and continued to increase in number until June first, and during this month they were seen in large numbers. In fact we arrived at the conclusion that they were breeding throughout the Barr district in probably half the numbers that the Blue-wings were, and we regretted exceedingly that the peculiar resemblance between the two species prevented us from gathering sufficient information to establish any peculiarities in nesting habits that might exist, but this would only have been possible by collecting an extensive series of the birds as they flushed from the nests; a proceeding which we considered altogether unwarranted.

WINTER BIRDS OF THE SALTON SEA REGION

By A. VAN ROSSEM

THE species listed here were taken during the six weeks between December 1, 1910 and January 14, 1911. Localities worked were Brawley, about fifteen miles southeast of Salton Sea, Alamoria, five miles north of Brawley, and Mecca on the west end of the Sea and about a mile from it, making a very convenient base from which to work the Sea and surrounding country. The Alamo River running near Brawley on its way to Salton, and the country closely adjacent form an ideal collecting ground, and on the whole the most productive one worked.

The river itself is a muddy stream from thirty to fifty yards wide and runs in the channel carved by the Colorado on its recent outbreak, which formed the new Salton Sea. The steep, almost perpendicular banks are washed out in many places, resulting in gulleys often running back a mile or more and supporting such growth as dwarf cottonwoods and weeping willows. Near the outlet where worn down to the river's level, tule bordered inlets are the result, attracting such species as the Desert Song Sparrow, Tule Wren, and Western Yellowthroat. The country about is as flat as a table, and at some time most of it has been cleared and then abandoned. Now a dense growth of "inkweed" has sprung up and it is difficult to distinguish it from the natural desert about. There is also a little mesquite but not nearly as much as at Mecca.

Here are found the typical desert birds, Leconte and Crissal thrashers, Plumbeous Gnatcatchers, Roadrunners and Cactus Wrens. Nearer the towns of Brawley and Alamoria the whole country is a network of canals and irrigation ditches, and in planting time, flooded meadows. These last make a handy and convenient larder for the thousands of ducks for which Imperial Valley is noted, as well as Sandhill Cranes, Ring-billed Gulls and several species of shore birds.

I was much interested in the feeding time of the different birds which came from Salton to the grain fields. The ducks all fed at night, arriving in the fields about dusk and leaving usually before daylight for the safer Sea. There was no definite time though, as flocks could be heard coming and going at all hours of the night. But the Sandhill Cranes were as regular as the clock, passing over my tent every morning from 7:00, the earliest to 7:15, the latest, returning just at sundown. Gulls and other shore birds did not come until late, usually about 8:00 and leaving as early as four in the afternoon.

At Mecca were found many species either rare or entirely absent from the other end of the Sea, perhaps on account of the slightly cooler climate. Fine drizzles fell three times during my stay there. The greater attraction was undoubtedly the mistletoe, which at this time was covered with berries furnishing food for the Phainopeplas, Bluebirds and Robins. Cover, too, was more plentiful, several planted rows and groves of cottonwoods and much native mesquite.

Two species to be expected, the Sage Thrasher and Desert Sparrow were entirely missing. There were also several surprises, the most noteworthy being the English Sparrow, quite a little colony of a dozen pairs or more having established itself at Brawley about the main street and freight depot. No one seemed to know anything of their time of arrival.

Salton Sea is rapidly drying up, and for a mile from the present shore line is a stretch of white, even the bases of the dead mesquites and bushes being crusted with alkali. The Farallon Cormorants prefer to build in the tops of the trees about

fifteen or twenty yards out and one can see where the water has been for two springs previous by the old nests now high and dry.

Following is a list of the birds collected, or noted where identification is positive.

1. *Æchmophorus occidentalis*. Western Grebe. About a dozen individuals, well out to sea on January 8, were exceptionally tame and unsuspicious.
2. *Larus californicus*. California Gull. Abundant at the "neck" where the railroad trestle crosses the sea. Doubtless attracted by the refuse thrown from trains as well as by the swarms of fish which come for the same purpose.
3. *Larus delawarensis*. Ring-billed Gull. At Brawley large flocks fed every day in the flooded fields. All seen here were adults or nearing maturity, while at Salton nearly all seen were birds of the year. Not so common as the last.
4. *Phalacrocorax auritus albociliatus*. Farallon Cormorant. Abundant at Salton Sea. A favorite roosting place was the partly submerged telephone poles, though the tree-tops about a quarter of a mile out were well occupied.
5. *Pelecanus erythrorhynchos*. White Pelican. Seen almost every day at Brawley in large flocks, and at Salton Sea. As early as January 8 they had begun to pair and by the thirteenth couples formed the majority.
6. *Anas platyrhynchos*. Mallard. Seen only at the Alamo River in threes and pairs, usually in quiet inlets.
7. *Mareca americana*. Baldpate. Three noted in a market shipment December 25.
8. *Nettion carolinense*. Green-winged Teal. Small flocks of from four to eight seen on the Alamo, and one taken.
6. *Querquedula cyanoptera*. Cinnamon Teal. A male seen in the bag of a local hunter December 16.
10. *Spatula clypeata*. Shoveller. Perhaps the most common duck both at Brawley and Salton.
11. *Dafila acuta*. Pintail. Quite common at Brawley and on the Alamo. A few seen at Salton.
12. *Marila americana*. Redhead. One bunch of four on the Alamo River Dec. 4, and several others examined in market bags.
13. *Marila valisineria*. Canvas-back. One in a game shipment December 25.
14. *Charitonetta albeola*. Bufflehead. A flock of six, all females, at Salton Sea January 8.
15. *Erismatura jamaicensis*. Ruddy Duck. Several individuals noted at the river and one at Salton January 8.
16. *Branta canadensis* subsp ? A flock of seven Canada geese passed close over my camp at Mecca January 12, but no specimens were taken.
17. *Ardea herodias treganzii*. Treganza Blue Heron. One seen at Brawley December 12. Abundant at Salton Sea.
18. *Nycticorax nycticorax naevius*. Black-crowned Night Heron. Fairly common at Salton but not in the numbers of the last.
19. *Grus mexicana*. Sandhill Crane. About a hundred, usually split into two or three flocks, passed over every morning about 7:00. On several occasions they were accompanied by a solitary White Pelican whether the same individual or not I could not tell.
20. *Rallus virginianus*. Virginia Rail. Two at least and perhaps three stayed about a tule grown spring, and were seen closely several times.

21. *Porzana carolina*. Carolina Rail. One killed in tules at the Alamo River, December 25.
22. *Fulica americana*. American Coot. One flushed from the tules along the Alamo December 4, was the only one seen.
23. *Gallinago delicata*. Wilson Snipe. Quite common on the mud flats at the edge of Salton Sea.
24. *Pisobia minutilla*. Least Sandpiper. Two specimens taken from a small flock in a grain field at Brawley December 8. No others seen.
25. *Ereunetes mauri*. Western Sandpiper. Quite common along the edge of the sea in small flocks.
26. *Totanus melanoleucus*. Greater Yellowlegs. Common from December 1 to December 25 in the flooded grain fields. None seen at Salton.
27. *Oxyechus vociferus*. Killdeer. Common near water.
28. *Lophortyx gambeli*. Gambel Quail. Abundant in large flocks everywhere, but very wild. A favorite place was in the mesquite thickets along the Alamo. One adult male taken at Mecca January 14 has no black belly mark, its place being taken by fine black scales, like the markings on a male Valley Quail, but slightly smeared.
29. *Zenaidura macroura carolinensis*. Mourning Dove. Fairly common in small flocks at Brawley and Alamoria. None seen at Mecca.
30. *Cathartes aura septentrionalis*. Turkey Vulture. Quite common. A much used roost was a large eucalyptus grove near Brawley.
31. *Circus hudsonius*. Marsh Hawk. Common about cultivated fields. One adult male at Salton.
32. *Accipiter velox*. Sharp-shinned Hawk. One adult male at Brawley, December 25, the only one seen.
33. *Accipiter cooperi*. Cooper Hawk. Fairly common in the mesquite crowned ravines, along the Alamo.
34. *Buteo borealis calurus*. Western Redtail. Six individuals noted, five at Brawley and one at Mecca.
35. *Aquila chrysaetos*. Golden Eagle. One passed close overhead at Alamoria December 18.
36. *Falco mexicanus*. Prairie Falcon. Two seen at Brawley, one chasing a Mourning Dove. At Mecca I had a quail snatched up within ten feet of me by one of these birds.
37. *Falco columbarius*. Pigeon Hawk. Several seen at Brawley in the cottonfields.
38. *Falco sparverius phaloena*. Desert Sparrow Hawk. Rather common at Brawley and Alamoria. Rare at Salton Sea.
39. *Pandion haliaetus carolinensis*. Osprey. One seen on several occasions at Salton Sea where its favorite perch was a partly submerged telegraph pole.
40. *Aluco pratincola*. Barn Owl. One taken and two others heard. From the number of small rodents they should be abundant about Brawley, but for some reason they are almost entirely absent.
41. *Asio flammeus*. Short-eared Owl. Next to the Burrowing Owl, the most common Raptore. They seemed to take the place of the Barn Owl and often four or five would be flushed at once. Usually found in the driest places.
42. *Otus asio* subsp? A screech owl hooted every night at Brawley, but was too wild to be shot.
43. *Bubo virginianus* subsp? Horned owls were flushed from crannies in the sand cliffs on the Alamo on two occasions.

44. *Speotyto cunicularia hypogaea*. Burrowing Owl. Abundant everywhere in suitable locations.
45. *Geococcyx californianus*. Roadrunner. Fairly common, but from what I could gather it has been decreasing rapidly the last three years.
46. *Dryobates scalaris bairdi*. Texas Woodpecker. One specimen taken and three others seen at Mecca.
47. *Colaptes cafer collaris*. Red-shafted Flicker. Abundant in suitable cover, usually in small flocks of four or five.
48. *Aeronauta melanoleucus*. White-throated Swift. Common at Mecca, especially on the lake shore.
49. *Calypre anna*. Anna Hummingbird. One at Brawley December 18 and one at Mecca January 4 were the only ones noted.
50. *Tyrannus vociferans*. Cassin Kingbird. One taken at Brawley and one seen at Mecca.
51. *Myiarchus cinerascens*. Ash-throated Flycatcher. A male taken December 18 near Alamoria.
52. *Sayornis sayus*. Say Phoebe. Common everywhere.
53. *Sayornis nigricans*. Black Phoebe. Fairly common especially near Salton. Not so abundant as the last.
54. *Empidonax griseus*. Gray Flycatcher. Two taken at Mecca in the mesquites January 5.
55. *Pyrocephalus rubineus mexicanus*. Vermilion Flycatcher. One near Alamoria December 9 and another seen at Mecca January 3.
56. *Otocoris alpestris pallida*. Sonora Horned Lark. Common by roadsides and in cultivated fields about Brawley and Alamoria. That these were *pallida* is supposition only, but Mr. P. I. Osburn took some winter specimens of this form but a few miles away at Calexico and in the same valley in 1908.
57. *Corvus corax sinuatus*. Raven. Seen about every day usually in pairs.
58. *Corvus brachyrhynchos hesperis*. Western Crow. Common around the outskirts of Brawley, but not seen elsewhere.
59. *Molothrus ater obscurus*. Dwarf Cowbird. Quite common at Mecca in company with the Brewer Blackbirds.
60. *Xanthocephalus xanthocephalus*. Yellow-headed Blackbird. Common at Brawley.
61. *Agelaius phoeniceus sonoriensis*. Sonoran Redwing. Enormous mixed flocks of this and the last species raised havoc with the sprouting grain near Brawley.
62. *Sturnella neglecta*. Western Meadowlark. Fairly common in small flocks in cultivated fields.
63. *Euphagus cyanocephalus*. Brewer Blackbird. Common about the ranch houses and corrals.
64. *Carpodacus mexicanus frontalis*. House Finch. Seen only at Brawley in the small park near the station, and only about half a dozen individuals. Possibly more abundant before the advent of the English Sparrow.
65. *Astragalinus psaltria hesperophilus*. Green-backed Gold Finch. Small flocks noted on three occasions by the roadside near Alamoria.
66. *Astragalinus lawrencei*. Lawrence Goldfinch. Abundant especially along the Alamo in the mesquites.
67. *Pooecetes gramineus confinis*. Western Vesper Sparrow. Abundant along irrigation ditches and fields.
68. *Passerculus rostratus*. Large-billed Sparrow. Three adults and four

birds of the year taken at a fresh-water spring surrounded by tules near Salton Sea.

69. *Chondestes grammacus strigatus*. Western Lark Sparrow. Common in cultivated districts and in Brawley.

70. *Zonotrichia leucophrys gambeli*. Gambel Sparrow. Abundant everywhere. Perhaps the most common bird.

71. *Zonotrichia coronata*. Golden-crowned Sparrow. Seemingly rare although many may have been missed in the large flocks of Gambels. One female juvenile taken December 18 the only one seen.

72. *Spizella breweri*. Brewer Sparrow. Common along weed-grown fences and in the cotton-fields.

73. *Amphispiza nevadensis*. Sage Sparrow. Abundant in dry bushy tracts.

74. *Amphispiza nevadensis canescens*. California Sage Sparrow. Associated with the last and in slightly larger numbers.

75. *Passer domesticus*. English Sparrow. About a dozen pairs in Brawley. As no old nests were observed about the buildings they are probably recent arrivals.

76. *Melospiza melodia fallax*. Desert Song Sparrow. Fairly common in the tules along the Alamo and at Salton Sea.

77. *Pipilo aberti*. Abert Towhee. Most abundant at Mecca in the mesquite thickets.

78. *Petrochelidon lunifrons*. Cliff Swallow. Common about reservoirs and flooded fields.

79. *Hirundo erythrogaster*. Barn Swallow. Usually to be seen with the three other species, mixed flocks being the rule. Both this and the last taken at Brawley on December 18.

80. *Iridoprocne bicolor*. Tree Swallow. Apparently the commonest swallow in all localities.

81. *Tachycineta thalassina lepida*. Violet-green Swallow. Not so common as the last.

82. *Phainopepla nitens*. Phainopepla. Abundant at Mecca feeding on the mistletoe berries.

83. *Lanius ludovicianus excubitorides*. White-rumped Shrike. Fairly common in all localities visited.

84. *Dendroica auduboni*. Audubon Warbler. Abundant everywhere.

85. *Geothlypis trichas occidentalis*. Western Yellow-throat. Fairly common but seemed to be confined to the tules.

86. *Anthus rubescens*. Pipit. Common along irrigation ditches and alkali flats at Salton Sea.

87. *Mimus polyglottos leucomelas*. Western Mockingbird. Heard one at Brawley. Common at Mecca.

88. *Toxostoma lecontei*. Leconte Thrasher. About a half a dozen individuals seen. Two secured December 9 and 16 showed no evidences of breeding.

89. *Toxostoma crissale*. Crissal Thrasher. Two taken at Alamoria. Quite common at Mecca.

90. *Heleodrytes brunneicapillus couesi*. Cactus Wren. About a half dozen seen at each place visited.

91. *Thryomanes bewickii bairdi*. Baird Wren. Fairly common at Brawley and Alamoria.

92. *Thryomanes bewickii charienturus*. San Diego Wren. Two specimens at Mecca.

93. *Troglodytes aedon parkmani*. Western House Wren. But one noted, an adult at Mecca, January 7.
94. *Telmatodytes palustris paludicola*. Tule Wren. Confined to the tule patches along the Alamo and at Salton.
95. *Auriparus flaviceps flaviceps*. Verdin. Two noted at Alamoria. Abundant in the mesquite at Mecca.
96. *Polioptila caerulea obscura*. Western Gnatcatcher. Noted only at Mecca in equal abundance with the next. As a rule found in trees while *plumbea* was more often seen in the low brush.
97. *Polioptila plumbea*. Plumbeous Gnatcatcher. Common in all three localities. Often seen in pairs.
98. *Regulus calendula calendula*. Ruby-crowned Kinglet. Several noted at each place. Most seen at Mecca.
99. *Planesticus migratorius propinquus*. Western Robin. Abundant about Mecca in the mistletoe-bearing mesquite. Two from Alamoria.
100. *Sialia mexicanus occidentalis*. Western Bluebird. A flock of about twenty hung about Mecca for two days.
101. *Sialia currucoides*. Mountain Bluebird. An adult male taken at Brawley December 12, the only one seen.

BIRDS FOUND AT MECCA, MARCH 18 TO 31, 1911

1. *Colymbus nigricollis californicus*. Eared Grebe. Several individuals and sometimes small flocks of from three to seven frequently seen at Salton Sea.
2. *Larus californicus*. California Gull. Common at the sea.
3. *Larus delawarensis*. Ring-billed Gull. Common. Adult birds already had the pure white head and neck of the breeding plumage.
4. *Phalacrocorax auritus albociliatus*. Abundant. Usually in large flocks about a mile off shore. No occupied nests were found and the birds had not yet taken on the breeding plumes.
5. *Pelecanus erythrorhynchos*. White Pelican. But one or two seen. Probably most had gone to their island, about thirty miles out, to breed.
6. *Dafila acuta*. Pintail. Fairly common in twos and threes in the weeds along shore.
7. *Marila affinis*. Lesser Scaup. A pair on a reservoir March 19.
8. *Charitonetta albeola*. Bufflehead. Three small flocks of two pairs each seen at the sea March 24.
9. *Nycticorax nycticorax naevius*. Black-crowned Night Heron. Several at Salton March 24. One or two roosted in the cottonwoods about a reservoir at Mecca.
10. *Ardea herodias treganzii*. Treganza Blue Heron. Not as common as during the winter. A nearly white albino seen March 24 in company with a normal bird. The plumage showed a decided bluish tinge even at a distance.
11. *Grus mexicanus*. Sandhill Crane. Two small flocks stayed about the fields near Mecca.
12. *Recurvirostra americana*. Avocet. Two flocks of about thirty each seen near the boat landing, were very tame allowing a close approach. Some were in complete breeding plumage and others in every shade to nearly clear gray on the head and neck.
13. *Gallinago delicata*. Wilson Snipe. Seen nearly every day, usually in pairs. The ovary of a female taken March 22 contained an egg the size of a small pea.

14. *Pisobia minutilla*. Least Sandpiper. Common in small flocks at Salton.
15. *Ereunetes mauri*. Western Sandpiper. Not so common as the last and usually only three or four together. Both species still in winter plumage.
16. *Oxyechus vociferus*. Killdeer. Abundant near water. Several seen on the dry desert above Mecca.
17. *Aegialitis nivosa*. Snowy Plover. Two pairs met with March 26 on the alkali flats near the sea. A male and female taken showed no signs of breeding.
18. *Lophortyx gambeli*. Gambel Quail. Common. Nearly all were paired off by this time and as single males were often flushed they may have been breeding.
19. *Zenaidura macroura carolinensis*. Mourning Dove. About a dozen individuals seen.
20. *Cathartes aura septentrionalis*. Turkey Vulture. Seen nearly every day singly or in pairs. Dead carp on the seashore seemed to be a favorite diet.
21. *Accipiter velox*. Sharp-shinned Hawk. Two seen March 21.
22. *Buteo borealis calurus*. Western Red-tail. An adult stayed about camp during our entire stay.
23. *Aluco pratincola*. Barn Owl. But a single bird noted. On March 30 one flushed from a mistletoe covered mesquite.
24. *Speotyto cunicularia hypogaea*. Burrowing Owl. Not common. A few noted on the desert above Mecca.
25. *Geococcyx californianus*. Roadrunner. One observed at Salton March 24 was only one seen, though their tracks could often be seen in sandy places.
26. *Dryobates scalaris bairdi*. Texas Woodpecker. Two pairs taken in the burned brush near Mecca. This charred mesquite was alive with borers, which judging from the crops and stomachs of the specimens taken, formed the exclusive diet of these wood-peckers.
27. *Colaptes cafer collaris*. Red-shafted Flicker. Fairly common in the mesquite brush near Mecca.
28. *Chordeiles acutipennis texensis*. Texas Nighthawk. Appeared March 20, a single bird. By the evening of the 24th they were common. Dozens could be seen over a damp meadow near our camp, and over nearby reservoirs.
29. *Aeronautes melanoleucus*. White-throated Swift. Several about a damp meadow March 21.
30. *Tyrannus verticalis*. Arkansas Kingbird. March 21 a flock of eight arrived and two pairs soon had nesting sites picked out near the station.
31. *Myiarchus cinerascens*. Ash-throated Flycatcher. One specimen taken March 30 in the mesquites was the only one noted.
32. *Sayornis nigricans*. Black Phoebe. A pair could usually be seen on any reservoir or damp ground.
33. *Empidonax griseus*. Gray Flycatcher. Mr. Howard Wright who was with me took one March 20. Another seen on the 23rd.
34. *Pyrocephalus rubineus mexicanus*. Vermilion Flycatcher. One collected by Mr. Wright on March 21. Within a week three pairs were in the immediate vicinity of our camp.
35. *Corvus corax sinuatus*. Raven. Several seen along the railroad on the telephone poles.
36. *Molothrus ater obscurus*. Dwarf Cowbird. Common in pairs. Usually associated with the Brewer Blackbird.
37. *Agelaius phoeniceus sonoriensis*. Sonoran Redwing. About a dozen pairs stayed about the cottonwoods near the station. In this grove were also a pair of

Vermilion Flycatchers, a pair of Arkansas Kingbirds, a pair of Texas Woodpeckers, and dozens of Goldfinches, Brewer Blackbirds, and Gambel Sparrows.

38. *Sturnella neglecta*. Western Meadowlark. Fairly common in the grain fields and wherever there was sufficient grass for cover.

39. *Icterus cucullatus nelsoni*. Arizona Hooded Oriole. One taken March 28 and another seen the same day were the only ones noted. Possibly common later in the year.

40. *Icterus bullocki*. Bullock Oriole. Several seen every day, the majority being adult males. The numerous old nests hanging from the cottonwoods would show them to be more abundant in the nesting season.

41. *Euphagus cyanocephalus*. Brewer Blackbird. Large flocks stayed about the horse corrals and along the railroads and freight yard.

42. *Astragalinus psaltria hesperophilus*. Green-backed Goldfinch. Abundant. Several pairs had nests well under way by March 30, thread and cotton from the skinning table going largely in their makeup.

43. *Astragalinus lawrencei*. Lawrence Goldfinch. Nearly as common as the last, but they had not paired off and specimens collected showed no signs of breeding.

44. *Spinus pinus*. Pine Siskin. A flock of four noted on the evening of March 28, feeding on the cottonwood seeds. The next day they were common, going in flocks of from four to twenty. Their crops were stuffed with cottonwood seeds.

45. *Passerculus sandwichensis alaudinus*. Western Savannah Sparrow. The Large-billed Sparrows had disappeared from the tule marsh completely and their place was taken by this species, which was very abundant but wild.

46. *Zonotrichia leucophrys gambeli*. Gambel Sparrow. From March 18 to 25 this was by far the commonest bird. After this they thinned rapidly and the day I left (March 31) only three were seen in a fairly wide range of ground covered.

47. *Spizella breweri*. Brewer Sparrow. Fairly common on the desert flat above Mecca, sometimes in company with the Gambel Sparrows.

48. *Amphispiza nevadensis canescens*. California Sage Sparrow. Sage Sparrows were rather rare. Not more than half a dozen were seen and these on the desert country above Mecca.

49. *Melospiza melodia fallax*. Desert Song Sparrow. A male specimen taken March 20 was in breeding condition, but no nests were found. Sometimes they could be heard on the desert a mile or more from water, in the dense mesquite thickets which dotted the desert here, but generally they were near water.

50. *Melospiza lincolni*. Lincoln Sparrow. Common on our arrival, but rapidly grew scarce. The last one seen was taken March 27.

51. *Pipilo aberti*. Abert Towhee. Abundant. A nest with two incubated eggs found March 20 in a clump of mistletoe, a set of three fresh in a like situation March 21, and another set of two in an arrow-weed clump March 27. Many old nests were found in locations like the first two.

52. *Iridoprocne bicolor*. Tree Swallow. Common in flocks during our stay. They were most in evidence in the late afternoon about reservoirs and fields.

53. *Phainopepla nitens*. Phainopepla. Abundant. Breeding. There were eight occupied nests in the mesquite grove of about four acres in which we were camped, two building, two with eggs, and four with young in various stages (March 20). Two days before I left such young as were on the wing, and their parents were gathering in flocks of from half a dozen to fifteen each. It is not unlikely that many raise a brood before starting northward to their summer home.

54. *Lanius ludovicianus excubitorides*. White-rumped Shrike. In considerably less numbers than in winter. A nest was found March 21 with three young just able to fly and another the 27th with five pipped eggs, only five feet from the ground in an "inkweed" bush.

55. *Vireo vicinior*. Gray Vireo. A specimen collected March 26 in the mesquites, and another heard the same day.

56. *Vermivora luciae*. Lucy Warbler. An adult female taken in a mesquite over the tent on March 29.

57. *Vermivora celata lutescens*. Lutescent Warbler. Only one seen, an adult female collected on March 28.

58. *Dendroica auduboni*. Audubon Warbler. Abundant everywhere until March 25. After this they decreased rapidly in numbers and the last one was seen March 29.

59. *Dendroica nigrescens*. Black-throated Gray Warbler. On March 21 eight passed through and one was taken. No others were noted.

60. *Geothlypis trichas occidentalis*. Western Yellowthroat. In breeding condition but no nests found. Common.

61. *Wilsonia pusilla chryseola*. Golden Pileolated Warbler. Appeared March 22 (two birds seen), and were common from then until we left.

62. *Anthus rubescens*. Pipit. A single bird seen on the alkali flat near Salton Sea March 19, and one on the 22nd.

63. *Oreoscoptes montanus*. Sage Thrasher. Mr. Wright took a pair the evening of March 22 in the brush near a canal. Single birds frequently seen from then on.

64. *Mimus polyglottos leucopterus*. Western Mockingbird. A pair were building in a dead mesquite near camp and had a half completed nest on March 31. The bulk of those which were so common here in January were probably winter visitants only.

65. *Toxostoma crissale*. Crissal Thrasher. Fairly common but shy. Several nearly grown young with tail feathers about three inches long were taken, and were from two different nests. Mr. Wright found a nest in a clump of mistletoe March 21 which contained one egg evidently deserted. The adults were already in worn, ragged plumage—what they must look like by July!

66. *Heleodetes brunneicapillus couesi*. Cactus Wren. Two pairs with nests, the contents of which could not be ascertained, in the mesquites near camp.

67. *Thryomanes bewickii charienturus*. San Diego Wren. Not common. One of the two noted was collected and is this form.

68. *Auriparus flaviceps*. Verdin. Common. Many nests were found ready for eggs, usually surrounded by three or four dummies. Two sets were taken March 21 and 26, containing slightly incubated sets of four and three eggs respectively. All nests were in mesquite trees and the great majority under six feet from the ground.

69. *Regulus calendula calendula*. Ruby-crowned Kinglet. Several seen up to March 25.

70. *Polioptila caerulea obscura*. Western Gnatcatcher. Not common. One collected March 20 and another heard on the 21st.

71. *Polioptila plumbea*. Plumbeous Gnatcatcher. Abundant. Birds taken were nearly ready to breed. A nest found on March 30 was just begun.

72. *Planesticus migratorius propinquus*. Western Robin. Common. Feeding on the mistletoe berries, many of which were still hanging. Most of the robins left by the 25th and 26th of March, but one or two could be seen every day till the 29th.

FROM FIELD AND STUDY

Some Diving Notes on Cormorants.—On June 12, 1910, while collecting along a stretch of rocky coast line in a twenty foot skiff, with Joe Francisco, my boatman, I took some interesting notes on the diving of the Brandt Cormorant (*Phalacrocorax penicillatus*), and Baird Cormorant (*Phalacrocorax pelagicus respandens*).

We were one and one-half miles southwest from Trinidad, Humboldt County, California, and about one-half mile off shore. Mr. Francisco had set a net the night before, near a blind rock and in twenty fathoms of water. We were taking in the net when a Brandt Cormorant came to the surface in its meshes, then a second one and a third. Although the Baird Cormorants were common everywhere on the ocean, there were none in the net. On closely questioning the fisherman, he informed me Brandt Cormorants were caught almost daily in from five to thirty fathoms of water, while using the deep water nets, but were never taken in over forty fathoms of water; while the Baird Cormorant, (I had taught him the difference between the two species), were often taken in as much as eighty fathoms of water.

I saw several Baird Cormorants rise to the surface of the water with pieces of kelp in their bills, in places where Joe informed me the water was over eighty fathoms deep. Brandt Cormorants were not seen far off shore, though they were common amongst the rocks near shore. Is it a superiority in diving, or a desire to obtain a certain kind of food that prompts the Baird Cormorants to go down deeper than Brandt Cormorants, while on their feeding grounds?—C. I. CLAY.

The Black Duck in California.—The Museum of Vertebrate Zoology of the University of California is the recipient of a specimen of the Black Duck (*Anas rubripes*). It is evidently a female, though the sex was not recorded from dissection, and is excellently mounted. It was transmitted to the Museum by Mr. Vernon Shepherd, a taxidermist of San Francisco, who received the bird from a hunter by the name of Spooner, who shot it at Willows, Glenn County, California, February 1, 1911. The specimen is No. 17198 of the Museum's department of birds.—J. Grinnell.

Golden Eagle and Dog.—The following eagle story was told to me by Mr. A. J. Nevraumont, of the California Seed Co., San Francisco, California, and both Mr. Nevraumont and his brother-in-law, who was with him at the time, are willing to take their oaths that it is true in every detail. And I might say parenthetically that they trust me implicitly to get the details straight. And I hope I do.

On Christmas day, 1909, Mr. Nevraumont and his brother-in-law took a walk in the redwood grove near San Rafael, Marin County, California, and had with them a small white dog. As they were strolling along, enjoying the balmy softness of a California Christmas among the beautiful evergreen redwood trees they were startled by the sound of rushing wings, and saw that an eagle was swooping down from some point of vantage upon the white dog. As the bird descended it touched a dead branch which broke off and came down on top of it just as it struck at the little dog. The branch was so heavy and the blow from it was so great that the eagle was partially stunned, and Mr. Nevraumont managed to jump on the bird and save his dog from harm. He killed the eagle with a club, and showed it to several people. If he had known at the time that my brother and I were interested in birds he would have presented it to us, he says, but being ignorant of our especial hobby he naturally did not do so. From his description it must have been a Golden Eagle. I have seen this species on rare occasions in this county, but never in the vicinity of San Rafael.—JOSEPH MAILLARD.

A Method of Tree Climbing.—Collecting a set of four Pileated Woodpecker's eggs from a stump five feet in diameter at the base; nest forty-five feet from the ground.

First a rod of one-fourth inch iron, thirteen feet long is bent as shown at *a b c*, Fig. 1, with loops at *a*, *b*, and *c*, and laid on the ground around the tree.

Second, a five-eighths inch rope twenty-five feet long, shown by *d e*, Fig. 1, wound spirally around the iron rod as shown, and with a loop at *l*, about six feet from end *d*, also laid on the ground.

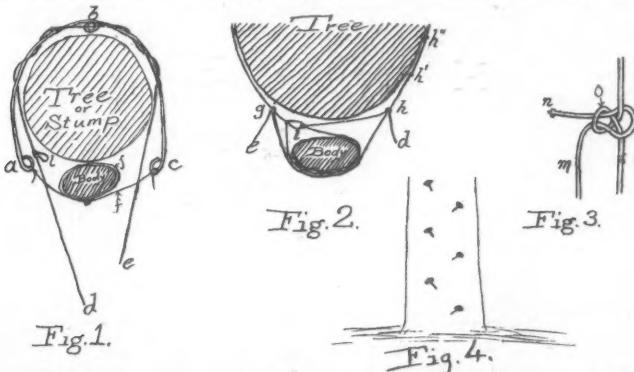
Third, six feet of clothes line tied around the waist (Fig. 1.) and to the loops *a* and *c* of the iron rod.

The rope end *d* is carried around the body and fastened to the loop *l* with any suitable knot and again at *h* as shown in Fig. 2. The end *e* is also passed around the body and fastened at *g*, the knots at *g* and *h* being made as shown in Fig. 3. As the tree becomes smaller, while being ascended, the loop *o*, (Fig. 3) has to be shifted from *h* to *h'* and *h''* etc., (Fig. 2) the slack rope being taken up at *g* (Fig. 2) by pushing the part *m* through the loop *o* and pulling the end *n*

out; so that when I slipped and fell back, which occasionally happened, as it was raining hard and blowing a gale, it jerked up tight on *o* but could not get *n* out. The two ends of the iron rod were bent around behind the bark as the rod became too long.

About two hours of experimenting were necessary to figure out this combination, the reverse of everything being very simple while coming down, which took about five minutes.

Twenty-five spikes eight inches long, and a small hand axe were also taken along (in a satchel with an egg box) and driven into the stump in a zig-zag as shown in Fig. 4, each spike being about two feet higher than the last; twenty-four spikes were needed and I could not have got the eggs with twenty-three only, so that it was "cutting it rather fine", but the estimated height was forty feet; it is advisable to take more than five extra spikes, especially as they cost only a cent apiece. The iron rod of course is used to lift the rope up ahead while ascending, branches being cut or knocked off with the hand axe, which was looped to the wrist most of the time to prevent dropping it. On the south side (where the nest was) the stump was so rotten that the spikes when driven four inches into the wood, pushed right out when my weight was put on them, so climbers were useless; on the north side they just would hold my weight and that was all, but two pulled out on the way down. The whole combination is absolutely safe and I could repeat it now in twenty minutes. It is hardly more difficult than going up and down stairs. The stump, a cottonwood, was about fifty-five feet high and surrounded by ash trees of the same height, in a large swamp of about 100 acres one-fourth mile from the Illinois river and four miles south of Kerby. The swamp is heavily timbered with large cottonwoods and smaller deciduous trees of other kinds, and these waving violently in the wind finally produced a sensation that was probably like sea-sickness, but deep-breathing stopped it very quickly. Also, when about ten feet below the nest the old birds appeared for the first time that day (the nest was



located the day before by seeing one bird fly to it when the other came out and flew away) and set up all kinds of "cat-calls" that very quickly dispelled any remaining dizziness.

The nest was about fifteen inches deep, the floor of it being boat-shaped, about ten inches long and five inches wide, and chipped out of the soft sap wood, so that its length was parallel with the side of the tree. The day before I staid near it for about an hour trying to devise some way to reach it and during this time the birds changed places once and occasionally hammered inside the nest, but did not throw anything out. The ground below was covered with fresh chips but the entrance was old and dark colored. One bird, probably the male, made most of the noise, while the other seemed very much subdued and depressed, and the same was noticed around a nest that I found in 1901. In each case the noisy bird was first heard, apparently about half a mile away and approaching very swiftly with its loud, clear calls; then lighting on a tree near by and keeping up a soft conversational "clu-clu-clu, clu-clu-clu", for several minutes till the other bird came out and flew silently away, when number one flew to the nest and looked in (while clinging to the outside just below the entrance) and then back out again and all around for six or eight times before going in. The soft notes are like "chuck" with the hard "ck" taken off and I have heard the same complete combination several times, apparently in about one place in another large swamp, but cannot find any nest, yet feel sure that a nest must be there as all of the conditions are just right for it.

The four eggs were about one-fourth incubated. It was rather difficult to reach half way around the tree and cut out the hollow, and it is very probable that if my father had not in the past given me endless instruction in all kinds of knots, the nest would never have been reached.

Some zoologists talk about hiring climbers, but I not only cannot get anyone to climb a tree, but find it necessary to go alone, as anyone who goes along in case of accident, throws so much "cold water" that it completely extinguishes my desire to climb. It might be well, if any large limb were to be encountered, to take a sharp hand saw.—CHARLES W. BOWLES.

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EDITORIAL NOTES AND NEWS

The Board of Supervisors of Los Angeles County has now under construction in Exposition Park, formerly Agricultural Park, in the city of Los Angeles, a building to be used for museum purposes. The name of the new institution is the Museum of History, Science and Art; the building is to cost \$226,000, exclusive of heating, lighting, decorating, or furnishing. Its purpose is the conservation and exhibition of scientific, historical and art objects. It is governed by a board of nine persons, chosen as follows: Two members from the Southern California Academy of Sciences, two from the Historical Society of Los Angeles, two from the Fine Arts League, one from the Southern Division of the Cooper Ornithological Club, the Chairman of the Board of Supervisors, and one member elected by those chosen as above stated. The present members of the Board of Governors are as follows:

W. A. Spalding and Dr. A. Davidson, representing the Academy of Sciences, Dr. Geo. F. Bovard and J. M. Guinn, representing the Historical Society, Mrs. W. H. Housh and A. F. Rosenheim, representing the Fine Arts League, Howard Robertson, representing the Cooper Club, R. W. Prichard, representing the Board of Supervisors, and W. M. Bowen, member at large.

Mr. W. M. Bowen has been elected President of the Board, and Mr. Howard Robertson Secretary. The duty of the Board is to take full

charge of the building, provide specimens and exhibits, and do such other things as are ordinarily required in the conduct of an institution of this character.

At present, progress is being made in the mounting of paleontological specimens from La Brea Ranch, and such other specimens as have been donated up to the present time.

The Museum building is divided into three wings; the north wing to be devoted to history, the south wing to natural sciences, and the west wing to art. The scientific department will be devoted to zoological specimens for exhibition purposes, as well as series for study, and it is expected that very large collections will be made. The historical department will deal largely with the early history of the southwest, and will contain many of the valuable records, books and other documents of the earlier history of southern California. The art department will be devoted to the exhibition of paintings, statuary, etc. There is now being prepared a bronze group, representing history, science and art, which, when completed, will be placed in the rotunda of the building.

Great success has been met with in obtaining exhibits, for the reason that as Los Angeles County has long been in need of a building of this kind, many people are glad of the opportunity to place collections therein. The building, of course, is absolutely fire proof, and being a county institution, sufficient funds for its maintenance are assured. It is expected that it will be completed and ready for occupancy some time during the latter part of September, or early in October. It will be some time after that before it is formally opened, as a large amount of work will have to be done in arranging exhibits and specimens.

The "Directory of the Cooper Ornithological Club" appearing in this issue contains the names of 369 active and five honorary members, showing a substantial increase in the size of the Club during the past year.

PUBLICATIONS REVIEWED

J. H. BOWLES' "NOTES EXTENDING THE [KNOWN] RANGE[S] OF CERTAIN BIRDS ON THE PACIFIC SLOPE" (*Auk* XXVIII, April 1911, pp. 169-178).—This article was avowedly prompted by the recognized shortcomings of the Third Edition of the A. O. U. Check-List in the matter of statements of distribution. The notes deal with about forty species as occurring in the State of Washington or in California in the vicinity of Santa Barbara.

In the first place the present reviewer would make the point in defense of the Check-List that the limitations imposed by practical size of the work necessitated the use of the most general terms in the outlining of ranges. On this score the Check-List statement that *Certhia familiaris zelotes* ranges "south to San Jacinto Mountains, spreading into adjacent valleys in winter" would seem to cover the possibility of its occurrence at Santa Barbara

in January as established by Mr. Bowles, so that the criticism of this and similar cases does not appear fairly deserved. Mr. Bowles' record in itself is, however, of decided value in adding a definite station to our detailed data on the distribution of the bird.

In the second place the obvious fact, apparent to anyone studying distribution of North American birds, that very many good records were overlooked by the compilers of the Check-List, resulting in inadequate statements of range, would fully warrant several of Mr. Bowles' "extensions". Here, however, Mr. Bowles might have clearly indicated whether his contribution was to serve as a criticism of the Check-List, or as an actual addition to known facts. (By "known" is meant *published*, and hence available to the public.) Thus, *Passerulus rostratus rostratus* had been previously recorded from Santa Barbara (Heermann, Pac. R. R. Rep. X, 1859, p. 46) and even as far north as Santa Cruz (Mailliard, CONDOR VI, Jan. 1904, p. 16).

In the third place the difficulties in the way of proper sub-specific designation have evidently lead to a difference in employment of names, and so have given rise to "extensions" of range in some cases probably warranted, in others not. The subspecific status of any bird in a given region cannot be safely considered as established upon the snap judgment of even the foremost of experts, nor upon conclusions reached by any person with scanty material or limited experience in systematic ornithology. Thus in *Psaltriparus* the determination of the correct name of the form at Santa Barbara would depend on a careful study of normal variation in series of specimens not only from Santa Barbara but from other geographic areas and taken at all seasons; also upon nomenclatural considerations based upon a study of literature with a view to ascertaining the applicability of the various proposed names. The same would be true for *Chamaea* and *Pipilo*.

Mr. Bowles' remarks in regard to the status of the Bush-Tit and Wren-Tit at Santa Barbara, give one to understand that the author thinks it probable that in each case *two* subspecies may exist in the vicinity, one being migratory. In our experience such a condition in these species is scarcely possible. Neither of the birds in question is migratory beyond a very limited local movement. The difference noted in specimens will probably be found to fall within the range of variation due to seasonal, age, or individual factors.

As of faunal interest and perhaps, worthy of different interpretation than that suggested by Mr. Bowles, the Stephens Fox Sparrow is recorded from an elevation of 3000 feet "in the hills of Santa Barbara County", under date of August 30. This is probably a transient

station, and *not* a breeding station. It is *not* the "farthest north record" for the species, as it is well known to breed in the high Transition zone on the north side of Mt. Pinos, lat. 34° 50' (see *Auk* XXII, Oct. 1905, p. 388). This locality is what is called "Tejon" Mountains in the A. O. U. Check-List.

It is extremely unfortunate that Mr. Bowles put *Pinicola enucleator californica* on record from southern California upon such inadequate evidence as that submitted. The occurrence of the species at any season at so low an elevation as 3000 feet anywhere in California is in itself exciting of comment. But when we consider that the species has never been recorded in California south of the head of the San Joaquin river, in Madera or Fresno County (Fisher, N. Am. Fauna No. 7, May 1893, p. 79), and never, winter or summer, below the Canadian life zone, a record like the present one demands the severest test. The California Pine Grosbeak is a species the occurrence of which anywhere under such zonal conditions as the "hills of Santa Barbara County", to be thoroughly established would have to be backed up by the taking of specimens at the very least. What makes this record the limit of badness is that it is couched in full scientific form and will have to be synonymized, but under what? If under *Pinicola*, an extra citation will be needed—with a question mark.

Another criticism of Mr. Bowles' paper is that some of the facts offered have been published fully by himself or others elsewhere; for example, in the case of *Steganopus tricolor* at Santa Barbara. Is it justifiable to repeat records and thus multiply citations except where a general review of the status of a species is attempted?

Now, whatever points I have indicated above, whether they be accepted by my readers as well taken or not, are made with their general bearing in view, and *not* with the intent of personally "scorching" Mr. Bowles! This should be clearly understood by the casual reader. In fact, Mr. Bowles told me some of the things he proposed to put on record long before this *Auk* article was sent in, and, knowing that I might take exceptions, invited me to publish my criticisms freely. Not one of us is beyond the possibility of making egregious errors, and never will be. But let us all exercise caution and the extreme of care in putting our supposed facts on record. I have been guilty myself of making a number of bad records (see CONDOR IV, Jan. 1902, p. 17). It gives a distinctly uncomfortable feeling that I never quite escape from. Perhaps this individual sensitiveness is a fortunate circumstance for our science. If so, would that it were a trait common to all bird students!—J. GRINNELL.

USEFUL BIRDS OF SOUTH AUSTRALIA.—The insectivorous birds are treated anew in an illustrated serial article beginning in the April 1911 issue (Vol. XIV No. 9, pp. 848-855) of the Journal of the Department of Agriculture of South Australia. The text is by Mr. A. G. Edquist and the colored plates are prepared by Mr. C. Wall. The author says "The importance of protecting the insectivorous species of our native birds becomes more apparent each year, with the increase of insect pests in our gardens and orchards. In order to assist in the identification of those harmless and useful native birds which are protected by law, we publish in this issue colored plates and descriptions of six species, and the series will be continued in subsequent numbers of the *Journal*."

A list is given of the species included in the Bird Protection Act of 1900, as well as the species upon which open seasons are allowed, and of those that may be killed or taken at any time. The destruction of wading birds is deplored as "it is the decimation of such birds which leads to the ever-increasing multitudes of crustaceans (crabs and yabbies) that destroy fish spawn and young fish hatching out in the Coorong and lakes at the Murray Mouth."

The first installment of "Our Feathered Friends", as the article is entitled, treats the following species, Frogmouth (*Podargus humeralis*), Mopoke (*Athene boobook*), Diamond Bird (*Pardalotus striatus*), Yellow-rumped Tomtit (*Acanthiza chrysorrhoa*), Red Warbler (*Acrocephalus australis*), and Magpie Lark (*Grallina australis*). Brief notes on the general nature of the food of each species is given together with comments on scientific and common names, appearance, habitat, nest, eggs and notes. Each species and its egg are illustrated in color.—W. L. M.

MINUTES OF COOPER CLUB MEETINGS

NORTHERN DIVISION

APRIL—The April meeting of the Northern Division of the Club was held on the evening of April 22 in the Museum of Vertebrate Zoology, Berkeley. The following members were present: H. C. Bryant, W. P. Taylor, O. Heinemann, E. W. Gifford, D. Brown, and H. S. Swarth. In the absence of the president and vice-president, Mr. Bryant took the chair. The minutes of the March meeting were read and approved. The following applications for membership were presented: Herbert Parker, South Lancaster, Mass.; S. S. Visher, Forestburg, S. D.; L. H. Paul, Newark, N. Y.; M. S. Crosby, Rhinebeck, N. Y.; L. M. Terrill, Quebec, Canada; W. J. Brown, Quebec, Canada; A. H. Helme, Suffolk Co., N. Y.; C. M.

Case, Hartford, Conn.; all presented by A. B. Howell; and L. Tremper, Philadelphia, Pa.; and Gurnie Wells, Santa Rosa, Cal., presented by W. Lee Chambers.

The following were elected to membership in the Club: Elizabeth B. Davenport, J. F. Frazier, Roy Norris, S. S. Dickey, W. B. Mershon, F. O. Pilsbury, J. H. Trumbull, A. D. DuBois, Rowena A. Clarke, F. H. Kennard, Juliette A. Owen, P. B. Philipp, Bunice E. Caduc, J. P. Norris, Jr., W. J. Hoxie, J. M. Edson, Carl Mueller, Louise Kellogg, F. Kermode, F. H. B. Jordan, J. F. Stevens, H. J. Rust, W. T. Shaw.

The amendments to the Constitution proposed by the Southern Division were then taken up, and after discussion the committee on the Constitution was instructed to communicate to the Southern Division the views the northern members held on the subject, and was given power to act in the matter. Mr. M. S. Ray resigned from the committee, and was replaced by Mr. O. Heinemann.—H. S. SWARTH, *Secretary*.

SOUTHERN DIVISION

APRIL—The April meeting of the Southern Division of the Cooper Club was held on Thursday evening, April 27, 1911, in the office of H. J. Lelande, 246 Wilcox Building, Los Angeles. The meeting was called to order by President Morcom, with the following members present: Messrs. Willett, Miller, Rich, Lamb, Alphonse Jay and Lelande.

On motion by Mr. Miller, seconded by Mr. Lamb, and duly carried, Mr. Lelande was appointed Secretary pro tem. The minutes of the March meeting were read and approved. The following applications for membership were presented: L. McI. Terrill, Westmont, Canada; William J. Brown, Westmont, Canada; Arthur H. Helme, Miller Place, N. Y.; Clifford M. Case, Hartford, Conn.; Robert P. Sharples, West Chester, Penn.; Dr. W. W. Arnold, Colorado Springs, Colo.; all presented by Mr. A. B. Howell; and Lauren Tremper, Philadelphia, Pa., presented by Mr. W. Lee Chambers.

On motion by Mr. Willett, seconded by Mr. Miller, and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Visher, Paul, Crosby, Parker, Edson, Hoxie, Norris, Caduc, Philipp, Kennard, Du Bois, Trumbull, Pilsbury, Mershon, Dickey, Norris, Frazier, Weed and Gardner, and the Misses Owen, Clarke and Davenport, whose names were presented at the March meeting.

The minutes of the March meeting of the Northern Division were read and ordered filed. Also a communication from Mr. Grin-

nell to Mr. Tracy mentioning the active interest that Col. Roosevelt took in ornithological matters during his recent visit to the U. C. Museum of Vertebrate Zoology; a communication from Mr. Henry Oldys, with circulars, in regard to his lectures; and a letter from Mr. F. S. Daggett in regard to the Chambliss collection.

President Morcom announced that the Misses Tarbell and Parker tendered, through him, to the members of the Cooper Club, an invitation to hold the spring outing meeting at their cabin in the Arroyo Seco Canyon. Mr. Lelande moved, and it was seconded by Mr. Willett, and duly carried, that the invitation be accepted, and the Secretary be instructed to send a letter of acceptance with thanks of the Club. Mr. Willett read portions of the data he has collected on the water birds of Santa Barbara, Ventura, Los Angeles, Orange and San Diego counties, which proved of much interest. Photographs taken by Prof. Loy Miller in the neighborhood of his residence were exhibited. Dr. Rich also exhibited a book of photographs which had been taken in the East and presented to him. Adjourned. —II. J. LELANDE, *Secretary, pro tem.*

MAY.—The Spring Outing Meeting of the Southern Division of the Cooper Club was held on Sunday afternoon, May 21, on the premises of the Misses Tarbell and Parker, Cabin 21, Arroyo Seco Canyon.

The meeting was called to order by President Morcom, with the following members present: Misses Tarbell and Palmer, Messrs. Clifton, Howell, Chambers, Miller, Judson, Alphonse Jay, Granville and Lelande. Miss Parker and Mr. Ralph Hord, and the mother, wife and children of W. B. Judson were present as visitors.

On motion by Mr. Miller, seconded by Mr. Judson, and duly carried, Mr. Lelande was appointed Secretary pro tem. The minutes of the April meeting of both Divisions were read and approved, and ordered filed. On motion by Mr. Judson, seconded by Mr. Miller and duly carried, the Secretary was instructed to cast the unanimous ballot of those present electing to active membership Messrs. Terrill, Brown, Helme, Case Sharples, Arnold and Tremper. The following applications for membership were presented: Proposed by A. B. Howell; Alex. Walker, Armour, South Dakota; Dr. B. A. Hamilton, Highland Park, Ill.; Mr. Frank Smith, Univ. of Illinois, Urbana, Ill.; Barton Warren Evermann, Bureau of Fisheries, Washington, D. C.; M. A. Carriger, Jr., Amer. Mus. Nat. Hist., New York City; W. T. Shaw, 600 Linden Ave., Pullman, Wash.; Henry J. Rust, Box 683, Coeur d'Alene, Idaho; J. F. Stevens, M. D., Box 546, Lincoln,

Nebraska; A. H. B. Jordan, Lowell, Wash.; Rev. Robt. Barbour, Y. M. C. A., Montclair, N. J.; H. Nehrling, Gotha, Orange Co., Florida; F. Kermode, Curator, Provincial Mus., Victoria, B. C.

Proposed by J. Grinnell, Louise Kellogg, 1253 Grove Street, Oakland, Calif. Proposed by W. L. Chambers: Gurnie Wells, Santa Rosa, Cal.; Carl Mueller, Marysville, Cal.; Owen Durfee, Box 125, Fall River, Mass.; Reginald C. Barker, Blackwater, Pinal Co., Arizona. Proposed by J. G. Tyler: Nita A. Blayne, 920 O St., Fresno, Cal.; F. M. Lane, 346 Blackstone Ave., Fresno, Cal. The resignation of Mr. G. C. Embody was read, and on motion by Mr. Clifton, seconded by Mr. Judson, and duly carried the said resignation was accepted with regret. On motion by Mr. Clifton, seconded by Mr. Miller, and duly carried, a rising vote of thanks was extended to the Misses Tarbell and Parker for their excellent luncheon and hospitality. Adjourned. H. J. LELANDE, *Secretary, pro tem.*

Directory of Members of the Cooper Ornithological Club

Revised to June 1, 1911

(Residence in California unless otherwise stated. Year following address indicates date of election.)

HONORARY MEMBERS

Allen, Dr. J. A., American Museum of Natural History, New York, N. Y. 1910.
 Beal, Prof. F. E. L., Dept. of Agriculture, Washington, D. C. 1910.
 Belding, Lyman, Stockton. 1896.
 Merriam, Dr. C. Hart, 1919 16th St., Washington, D. C. 1909.
 Ridgway, Robert, 3353 18th St., N. W., Washington, D. C. 1905.

ACTIVE MEMBERS

Adams, Ernest, Box 21 Clipper Gap, Placer Co. 1896.
 Allen, Arthur A., 115 Stewart Ave., Ithaca, N. Y. 1911.
 Alexander, Miss Annie M., 1006 16th St., Oakland. 1908.
 Anderson, Malcolm P., Menlo Park, 1901.
 Appleton, J. S., Simi, Ventura Co. 1901.
 Arnold, B. W., 465 State St., Albany, N. Y. 1910.
 Arnold, E., Frt. Claim Agt., Grand Trunk Ry., Montreal, Quebec. 1910.
 Arnold, Dr. Ralph, 726 H. W. Hellman Bldg., Los Angeles. 1893.
 Arnold, Dr. W. W., 504 N. Nevada Ave., Colorado Springs, Colo. 1911.

Atkinson, W. L., 28 E. Santa Clara St., San Jose. 1901.

Bade, Wm. Frederic, 2616 College Ave., Berkeley. 1903.

Bailey, Florence Merriam, 1834 Kalorama Rd., Washington, D. C. 1910.

Bailey, H. H., Box 154, Newport News, Va. 1903.

Bailey, Vernon, 1834 Kalorama Rd., Washington, D. C. 1904.

Bales, Dr. B. R., 151 West Main St., Circleville, Ohio. 1906.

Bangs, Outram, Mus. of Comparative Zoology, Cambridge, Mass. 1910.

Barbour, Rev. Robt., V. M. C. A., Montclair, N. J. 1911.

Barker, Reginald C., Blackwater, Pinal Co., Ariz. 1911.

Barnes, R. Magoon, Lacon, Ill. 1908.

Barrows, Prof. Walter B., Box 183, East Lansing, Mich. 1909.

Batchelder, Chas. F., 7 Kirkland St., Cambridge, Mass. 1910.

Baynard, Oscar E., Gainsville, Fla. 1911.

Beck, Rollo H., Berryessa. 1894.

Beekman, Orland, Sespe. 1911.

Beers, Henry W., 91 Denver Ave., Bridgeport, Conn. 1910.

Bennett, R. H., Room 503, 149 California St., San Francisco. 1909.

Bent, A. C., Taunton, Mass. 1909.

Bigelow, Homer L., Old Orchard Road, Chestnut Hill, Mass. 1910.

Birdseye, Clarence, Biol. Survey, Washington, D. C. 1909.

Bishop, Dr. Louis B., 356 Orange St., New Haven, Conn. 1904.

Blain, Merrill W., 1321 Glendale Ave., Tropico. 1909.

Blake, Maurice C., Thatcher School, Nordhoff. 1911.

Blayney, Nita A., 920 O St., Fresno. 1911.

Bliss, J. G., 3281 Briggs Ave., Alameda. 1908.

Bohlman, Herman T., 46 N. 9th St., Portland, Oregon. 1903.

Bolander, L. P., Jr., 545 N. Sutter St., Stockton. 1907.

Bowditch, B. S., Demarest, N. J. 1910.

Bowles, Chas. W., Kerby, Oregon. 1903.

Bowles, J. H., Gregson House, Santa Barbara. 1903.

Boyce, John J., Box 142, Berkeley. 1910.

Boyer, Edgar, Box 418, Sparks, Nevada. 1911.

Braislins, Wm. C., M. D., 556 Washington Ave., Brooklyn, N. Y. 1910.

Brandreth, Courtney, Ossining, N. Y. 1911.

Brauer, W. G., 717½ W. Jefferson St., Los Angeles. 1911.

Brewster, William, 145 Brattle St., Cambridge, Mass. 1904.

Brooks, Allan, Okanogan Landing, B. C., Canada. 1906.

Brown, C. Emerson, Boston Soc. of Nat. History, Boston, Mass. 1911.

Brown, D. E., Room 11, Federal Bldg., Tacoma, Wash. 1909.

Brown, Dudley H., 166 Parnassus Ave., San Francisco. 1911.

Brown, Wm. J., 250 Oliver St., Westmont, Quebec, Canada. 1911.

Brown, W. W., Jr., 1033 Key West St., Los Angeles. 1909.

Bryant, Harold C., 2508 Haste St., Berkeley. 1910.

Burnett, W. L., Box 691, Ft. Collins, Colorado. 1910.

Burnham, Dr. Clark, Bushnell Place, Berkeley. 1907.

Burnham, Mrs. Clark, Bushnell Place, Berkeley. 1907.

Burns, Frank L., Berwyn, Pa. 1909.

Burt, H. C., Santa Paula. 1910.

Burtsch, Verdi, Branchport, N. Y. 1910.

Burturlin, Sergius A., Wesenberg, Esthonia, Russia. 1909.

Caduc, Eugene E., 14 Derne St., Boston, Mass. 1911.

Camp, Chas., Sierra Madre. 1909.

Carpenter, Nelson K., Box 127, Escondido. 1901.

Carriger, Henry W., 69 A Walter St., San Francisco. 1895.

Carriker, M. A., Jr., American Museum Natural History, New York City, N. Y. 1911.

Case, C. M., 7 Holcomb St., Hartford, Conn. 1911.

Chamberlin, Willard, Box 288, Williams, Ariz. 1906.

Chambers, W. Lee, R. D. 1, Box 73 D, Los Angeles. 1897.

Chapman, Frank M., Amer. Mus. Nat. Hist., Central Park, New York City, N. Y. 1903.

Childs, John Lewis, Floral Park, N. Y. 1904.

Clark, Josiah H., 238 Broadway, Paterson, N. J. 1910.

Clarke, Rowena A., Kirkwood Branch, "Seven Gables", St. Louis, Mo. 1911.

Clay, C. Irvin, Box 353, Eureka. 1910.

Clifton, H. T., 871 N. Lake Ave., Pasadena. 1904.

Coale, Henry K., Highland Park, Ill. 1907.

Coggins, Herbert L., 776 Mission St., San Francisco. 1910.

Cohen, Donald A., Alameda. 1894.

Colburn, A. E., 744 So. Broadway, Los Angeles. 1905.

Cooke, Wells W., Biol. Survey, Washington, D. C. 1911.

Cooper, James S., 826 53rd St., Oakland. 1903.

Craven, Jesse T., 811 Roosevelt Ave., Detroit, Mich. 1909.

Crosby, Maunsell S., Grasmere Farms, Rhinebeck, N. Y. 1911.

Currier, Ed. S., P. O. Drawer 21, St. Johns, Multnomah County, Oregon. 1904.

Daggett, Frank S., 109 So. Elmwood Ave., Oak Park, Ill. 1895.

Dalgleish, John J., Brankston Grange, Alloa, Scotland. 1910.

Davenport, Mrs. Elizabeth B., Lindenhurst, Brattleboro, Vt. 1911.

Davis, Evan, Orange. 1894.

Davis, J. M., 811 O St., Eureka. 1908.

Dawson, W. Leon, R. D. 3, Box 83, Santa Barbara. 1906.

Day, Chester S., 15 Chilton Road, West Roxbury, Mass. 1910.

Dean, W. F., Three Rivers. 1901.

Deane, Ruthven, 135 Adams St., Chicago, Ill. 1904.

Deane, Walter, 29 Brewster St., Cambridge Mass. 1907.

Dearborn, Ned, Linden, Md. 1909.

Dewey, C. L., care of Auto. Fire Prot. Co., Whitestone, Long Island, N. Y. 1910.

Dickey, Donald R., 407 Olcott Place, Pasadena. 1910.

Dickey, Samuel S., 31 S. West St., Waynesburg, Pa. 1911.

Dille, F. M., 325 16th St., Denver, Col. 1903.

Dixon, Joseph, Escondido. 1904.

Du Bois, Alexander Dawes, 401 S. Aurora St., Ithaca, N. Y. 1911.

Duprey, H. F., Dixon. 1907.

Durfee, Owen, Box 125, Fall River, Mass. 1911.

Dutcher, Wm., 990 Central Ave., Plainfield, N. J. 1905.

Dwight, Jonathan, Jr., M. D., 134 W. 71st St., New York, N. Y. 1904.

Eastman, Lieut. F. B., 10th Inftry., Ft. Thomas, Kentucky. 1904.

Edson, J. M., Marietta Road, Bellingham, Wash. 1911.

Esterly, C. O., Occidental College, Los Angeles. 1908.

Evermann, Barton Warren, Bureau of Fisheries, Washington, D. C. 1911.

Ferris, H. H., Care of Y. M. C. A., Lake Geneva, Wisconsin. 1910.

Finley, Wm. L., R. F. D. 1, Box 60 A, Milwaukee, Oregon. 1900.

Fischer, E. J., 720 E. 10th St., Los Angeles. 1910.

Fisher, Dr. A. K., Dept. Agri., Washington, D. C. 1904.

Fisher, Miss Elizabeth W., 524 Walnut St., Philadelphia, Pa. 1910.

Fisher, Prof. Walter K., Box 373, Palo Alto. 1900.

Flanagan, John H., 392 Benefit St., Providence R. I. 1904.

Fleming, J. H., 267 Rusholme Road, Toronto, Ontario, Canada. 1910.

Follett, Richard E., 84 State St., Boston, Mass. 1909.

Forrest, E. R., 357 N. Main St., Washington, Pa. 1910.

Fortner, J. C., Jr., Brawley. 1910.

Fowler, Frederick H., Palo Alto. 1901.

Frazier, J. F., Audubon, Iowa. 1911.

Frost, A. H., 255 W. 74th St., New York City, N. Y. 1910.

Fuertes, Louis A., Cornell Heights, Ithaca, N. Y. 1904.

Gane, Henry Stewart, Santa Barbara. 1903.

Gardner, Leon L., Claremont. 1911.

Gault, Benj. T., Glen Ellyn, Ill. 1905.

Gay, Harold S., Valardena, Durango, Mexico. 1901.

Gifford, Edw. W., Cal. Acad. of Sci., San Francisco. 1904.

Gilman, M. French, Sacaton, Arizona. 1901.

Goldman, E. A., Dept. of Agriculture, Washington, D. C. 1901.

Goldman, Luther J., Orosi. 1908.

Goodwin, Rev. S. H., Box 284, Provo, Utah. 1910.

Gould, Jos. E., 5 Clifton St., Norfolk, Va. 1909.

Grant, Chapman, N. Y. Aquarium, Battery Park, New York, N. Y. 1906.

Grant, U. S., 4th, Salem Center, Westchester Co., N. Y. 1909.

Granville, Fred, 3414 Pasadena Ave., Los Angeles. 1911.

Grey, Henry, R. F. D. 2, Box 154 A, San Diego. 1901.

Grinnell, Joseph, U. C. Mus. Vert. Zoology, University of California, Berkeley. 1894.

Groesbeck, Charles E., Venice. 1897.

Guion, Geo. Seth, Napoleonville, La. 1911.

Halladay, Daniel S., 729 Central Bldg., Los Angeles. 1910.

Hamilton, Dr. B. A., Highland Park, Ill. 1911.

Hann, H. H., Mt. Hood, Oregon. 1909.

Hanna, Wilson C., Box 146, Colton. 1902.

Harris, R. Park, care of Wm. Wood, Renton, Wash. 1909.

Hawver, Dr. J. C., Box 214, Auburn. 1909.

Hazard, R. G., Peace Dale, R. I. 1909.

Heinemann, Oluf J., 1662 Grove St., San Francisco. 1908.

Heller, Edmund, U. S. Nat. Museum, Washington, D. C. 1894.

Helme, Arthur H., Miller Place, Suffolk Co., N. Y. 1911.

Henderson, Hon. Junius, Box 398, Boulder, Colorado. 1909.

Henshaw, H. W., Dept. of Agriculture, Washington, D. C. 1909.

Hersey, L. J., 2121 West 34th Ave., Denver, Colorado. 1909.

Holland, Harold M., Box 515, Galesburg, Ill. 1901.

Holt, Wm. L., Banning. 1909.

Hoover, Theodore J., 1 London Wall, London, E. C. England. 1898.

Howard, O. W., Box 1177, Los Angeles. 1895.
 Howell, Alfred Brazier, 250 N. Orange Grove Ave., Pasadena. 1908.
 Howell, B. F., Jr., R. F. D. 1, Boonton, N. J. 1909.
 Howes, Paul G., Stamford, Conn. 1910.
 Howsley, L. B., Nyssa, Oregon. 1909.
 Hoxie, W. J., 1522 Bull St., Savannah, Ga. 1911.
 Hubbs, Carl L., R. D. 1, Box 288, Turlock. 1910.
 Huey, Lawrence, 32nd St. & Clay Ave., San Diego. 1909.
 Hunter, J. S., Union Hotel, San Mateo. 1903.
 Illingsworth, J. F., 126 Catherine St., Ithaca, N. Y. 1896.
 Ingersoll, A. M., 832 5th St., San Diego. 1895.
 Irving, F. N., 306 W. 36th St., Savannah, Ga. 1910.
 Isham, C. Bradley, 30 E. 63rd St., New York, N. Y. 1909.
 Jackson, Thos. H., 304 N. Franklin St., West Chester, Pa. 1911.
 Jackson, Willis H., Pescadero. 1901.
 Jacobs, J. Warren, 404 S. Washington St., Waynesburg, Pa. 1909.
 Jay, Alphonse, 1622 Pennsylvania Ave., Los Angeles. 1901.
 Jay, Antonin, 1622 Pennsylvania Ave., Los Angeles. 1901.
 Jessee, Dr. R. L., Philo, Ill. 1909.
 Jewett, Stanley G., 472 Bidwell Ave., Portland, Oregon. 1909.
 Johnson, Frank Edgar, 16 Amackassin Terrace, Yonkers, N. Y. 1911.
 Johnson, Miss Myrtle E., National City. 1908.
 Jonas, Coleman, 1023 Broadway, Denver, Colorado. 1910.
 Jones, Prof. Lynds, Mus. of Oberlin College, Oberlin, Ohio. 1911.
 Jordan, A. H. B., Lowell, Wash. 1911.
 Jordan, Dr. David Starr, Stanford University. 1902.
 Judson, W. B., 409 Mason Opera House, 127 S. Broadway, Los Angeles. 1894.
 Julien, Miss Lillian M., Yreka, Siskiyou Co. 1901.
 Kaeding, Geo. L., Box 93, Eureka, Nevada. 1903.
 Kaeding, Henry B., Candor, N. C. 1895.
 Kellogg, Miss Louise, 1253 Grove St., Oakland. 1911.
 Kellogg, Prof. Vernon L., Stanford University. 1901.
 Kennard, Frederic Hedge, Dudley Road, Newton Centre, Mass. 1911.
 Kermode, F., Provincial Museum, Victoria, B. C. 1911.
 Kessing, Lawrence R., 1430 Santa Clara Ave., Alameda. 1899.
 Keyes, Prof. Chas. R., Mt. Vernon, Iowa. 1900.
 Kimball, H. H., 1527 M. St., Fresno. 1909.
 Knickerbocker, Chas. K., 445 N. Sacramento Ave., Carpenter Sta., Chicago, Ill. 1905.
 Knowlton, Dr. F. H., U. S. Nat. Museum, Washington, D. C. 1910.
 Kofahl, Harry J., 123 Los Angeles St., Los Angeles. 1909.
 Kofoid, Prof. C. A., University of California, Berkeley. 1909.
 Kohler, Louis S., 98 Watsessing Ave., Bloomfield, N. J. 1909.
 Lamb, Chester C., Yermo. 1899.
 Lane, F. M., 346 Blackstone Ave., Fresno. 1911.
 Law, J. Eugene, Hollywood. 1900.
 Lelande, H. J., 246 Wilcox Bldg., Los Angeles. 1897.
 Linton, C. B., 125 W. Ocean Ave., Long Beach. 1906.
 Littlejohn, Chase, Redwood City. 1909.
 Loomis, Leverett M., Cal. Acad. of Science, San Francisco. 1902.
 Love, Chas. A., 3353 22nd St., San Francisco. 1901.
 Luce, Geo. W., Haywards. 1904.
 Luther, Clarence H., 8 McIlroy Bldg., Fayetteville, Ark. 1909.
 Mailliard, Ernest C., Bank of California, San Francisco. 1909.
 Mailliard, John W., 300 Front St., San Francisco. 1894.
 Mailliard, Joseph, 1815 Vallejo St., San Francisco. 1895.
 Marsden, H. W., Witch Creek. 1905.
 Massey, Herbert, Ivy Lea, Burnage, Didsbury, Manchester, England. 1909.
 Matthews, Dr. Ellen, 142 Kenwood Ave., Glendale. 1901.
 McAtee, W. L., Biological Survey, Dept. of Agriculture, Washington, D. C. 1907.
 McGregor, R. C., Bureau of Science, Manila, P. I. 1893.
 McKechnie, F. B., Ponkapog, Mass. 1909.
 McLain, R. B., Market and 12th St., Wheeling, W. Va. 1897.
 McQuilling, W. S., 125 N. Fair Oaks Ave., Pasadena. 1909.
 Mearns, Maj. Edgar A., U. S. Natl. Mus., Washington, D. C. 1905.
 Meeker, Jesse C. A., 51 Washington Ave., Danbury, Conn. 1907.
 Meister, H. D., Swanton, Ohio. 1909.
 Mershon, W. B., Saginaw, Mich. 1911.
 Messenger, G. H., Linden, Iowa. 1910.
 Miller, Prof. Loye Holmes, State Normal School, Los Angeles. 1905.
 Miller, Mrs. Olive Thorne, 5928 Hayes Ave., Los Angeles. 1911.
 Miller, W. DeWitt, American Museum Natural History, New York, N. Y. 1909.
 Miner, Dr. H. N., Upper Lake, Lake County. 1903.

Mitchell, Dr. Louis J., Trude Bldg., Chicago, Ill. 1909.

Mitchell, Dr. Walton I., 321 Barnes Bldg., Wichita, Kas. 1909.

Moran, R. B., 661 Waverley St., Palo Alto. 1897.

Morcom, G. Frean, 1815 N. Raymond Ave., Pasadena. 1904.

Mueller, Carl, Marysville. 1911.

Munk, Dr. J. A., 337½ S. Hill St., Los Angeles. 1909.

Nehrling, H., Gotha, Orange Co., Florida. 1911.

Nelson, E. W., Bureau Biol. Survey, Dept. of Agriculture, Washington, D. C. 1904.

Newbury, F. E., 921 Shreve Bldg., San Francisco. 1904.

Newkirk, Dr. Garrett, 501 Slavin Bldg., Pasadena. 1900.

Nichols, J. T., Columbus Ave., and W. 77th St., New York, N. Y. 1909.

Nicholson, Donald J., Orlando, Florida. 1911.

Noack, H. R., 309 Perry St., Oakland. 1901.

Norris, Joseph Parker, Jr., 2122 Pine St., Philadelphia, Pa. 1911.

Norris, Roy, 725 N. 10th St., Richmond, Ind. 1911.

Oberholser, Harry C., 1445 Girard St., N. W., Washington, D. C. 1904.

Ohlendorf, W. C., M. D., New No. 1922 Blue Island Ave., Chicago, Ill. 1910.

Osburn, Pingree I., 735 N. Los Robles Ave., Pasadena. 1908.

Osgood, Wilfred H., Field Museum Natural History, Chicago, Ill. 1893.

Owen, Miss Juliette A., 306 N. 9th St., St. Joseph, Mo. 1911.

Owen, Virgil W., U. S. Dist. Court, Federal Bldg., Los Angeles. 1896.

Palmer, Miss Elizabeth Day, 1741 Harvard Bldg., Los Angeles. 1909.

Palmer, Dr. T. S., 1939 Biltmore St., N. W., Washington, D. C. 1903.

Parker, Herbert, South Lancaster, Mass. 1911.

Paul, Lucius H., 59 W. Miller St., Newark, N. Y. 1911.

Peabody, Rev. P. B., Blue Rapids, Kas. 1904.

Pearson, T. Gilbert, Greensboro, N. C. 1910.

Peck, Morton E., 531 New High St., Salem, Oregon. 1909.

Pemberton, J. R., 18th and Corbett Road, Simons Fount Brick Co., San Francisco. 1900.

Pennock, Chas. J., Kenneth Square, Chester County, Penn. 1909.

Perez, Richard M., 1222 Alvarado St., Los Angeles. 1909.

Peyton, Lawrence, Sespe. 1909.

Philip, Philipp Bernard, 220 Broadway, New York, N. Y. 1911.

Phillips, John C., Knobfields, Wenham, Mass. 1911.

Pierce, Wright M., Box 116, Claremont. 1902.

Pilsbury, Frank O., 90 Main St., Walpole, Mass. 1911.

Pleasants, Mrs. J. E., R. D. 3, Orange. 1900.

Peterson, W. M., Manuelito, New Mexico. 1908.

Pomeroy, H. K., Box 575, Kalamazoo, Mich. 1909.

Price, A. E., Grant Park, Ill. 1905.

Randolf, Miss Flora A., 2962 Derby St., Berkeley. 1907.

Rathbun, S. F., 217 14th Ave. N., Seattle, Wash. 1904.

Ray, Milton S., 26 Stewart St., San Francisco. 1899.

Redington, A. P., Box 66, Santa Barbara. 1897.

Reining, Chas., 1436 Clay St., Davenport, Iowa. 1906.

Rich, Guy C., M. D., 1100 Pearl St., Sioux City, Iowa. 1911.

Richards, E. B., 412 Kate Hayes St., Box 805, Grass Valley, Nevada Co. 1909.

Richards, Dr. T. W., 1911 N St., N. W., Washington, D. C. 1908.

Richardson, Chas. H., Jr., Stanford University. 1902.

Richmond, Dr. Chas. W., U. S. Natl. Museum, Washington, D. C. 1904.

Riley, J. H., U. S. Natl. Museum, Wash., D. C. 1909.

Ritter, Prof. W. E., La Jolla. 1901.

Roberts, Austin F., 981 Summit Ave., Pasadena. 1909.

Roberts, Dr. T. S., 1603 4th Ave., Minneapolis, Minn. 1909.

Robertson, Howard, 526 Merchants Trust Bldg., Los Angeles. 1896.

Rockwell, Robt. B., 1240 Downing Ave., Denver, Colorado. 1908.

Rossignol, Gilbert R., Jr., 2116 Bull St., Savannah, Ga. 1909.

Rowley, J., 42 Plaza Drive, Berkeley. 1909.

Rust, Henry J., Box 683, Coeur d'Alene, Idaho. 1911.

Sage, John H., Portland, Conn. 1910.

Sampson, Walter B., 816 Kohl Bldg., San Francisco. 1894.

Saunders, Aretas A., care of Forest Service, Anaconda, Mont. 1909.

Saunders, W. E., London, Ontario, Canada. 1909.

Sclater, William Lutley, Odham Priory, Winchfield, Hants, England. 1909.

Schneider, J. J., Box 363, Anaheim. 1899.

Sharp, Clarence S., Escondido. 1902.

Sharples, Robert, West Chester, Penn. 1911.

Shaw, W. T., 600 Linden Ave., Pullman, Wash. 1911.

Sheldon, H. H., 578 5th Ave., San Francisco. 1903.

Shelton, Alfred, R. F. D. 1, Petaluma. 1909.

Shepardson, D. I., 1128 Hobart Blvd., Los Angeles. 1909.

Sherman, Miss Althea R., Route 2, McGregor, Iowa. 1911.

Shufeldt, Dr. R. W., 3356 18th St., N. W., Washington, D. C. 1911.

Skinner, E. H., 745 W. 17th St., Los Angeles. 1900.

Sloanaker, Jos. L., Newton, Iowa. 1910.

Smith, Allyn G., Box 263, Redlands. 1909.

Smith, Austin Paul, Box 141, Brownsville, Texas. 1907.

Smith, C. Piper, care of H. A. Menker, 1371 Main St., Buffalo, N. Y. 1905.

Smith, Frank, Univ. of Ill., Urbana, Ill. 1911.

Smith, Philo W., Jr., Box 285, Eureka Springs, Ark. 1909.

Smith, Wilfred, 1111 6th St., Santa Monica. 1911.

Snyder, Gaylord K., 928½ W. 1st St., Los Angeles. 1910.

Snyder, Prof. J. O., Box 775, Stanford University. 1900.

Sornborger, J. D., Rowley, Mass. 1911.

Spaulding, E. S., Cor. Chapala and Sola Sts., Santa Barbara. 1910.

Spaulding, F. B., Lancaster, N. H. 1910.

Spielmann, Oscar P., 1440 Warner Ave., Chicago, Ill. 1909.

Steinbeck, Wm., 1029 N. Hunter St., Stockton. 1897.

Stephens, Frank, Box 13, R. F. D. 2, San Diego. 1894.

Stern, Norman B., 2322 Cedar St., Berkeley. 1910.

Stevens, Dr. J. F., Box 546, Lincoln, Neb. 1911.

Stone, D. D., R. F. D. 3, Oswego, N. Y. 1909.

Storer, Tracy L., P. O. Drawer 18, Elmhurst, Greater Oakland. 1910.

Strecker, John K., Jr., Baylor University, Waco, Texas. 1909.

Suksdorf, P. J., Bingen, Wash. 1910.

Swales, Bradshaw H., Grosse Isle, Mich. 1906.

Swarth, H. S., U. C. Museum Vert. Zoology, University of California, Berkeley. 1897.

Swett, Miss Helen, Martinez. 1901.

Tarbell, Miss Olga S., 95 East Villa St., Pasadena. 1906.

Taverner, P. A., 55 Elmhurst Ave., Highland Park, Mich. 1909.

Taylor, E. F., Grass Valley, Nevada Co. 1910.

Taylor, Loren E., Box 482, Reno, Nevada. 1897.

Taylor, Walter P., U. C. Museum Vert. Zoology, University of California, Berkeley. 1905.

Terrill, L. McL., 354 Elm Ave., Westmount, Quebec, Canada. 1911.

Test, Louis Agassiz, Rolla, Missouri. 1908.

Thayer, John E., Box 98, Lancaster, Mass. 1906.

Todd, W. E. Clyde, Carnegie Museum, Pittsburgh, Pa. 1909.

Torrey, Bradford "The Upham", Santa Barbara. 1910.

Tracy, H. C., 210 S. Highland Ave., Hollywood. 1910.

Treganza, A. O., 62 Hooper Bldg., Salt Lake City, Utah. 1907.

Tremper, Lauren, 136 Dewey St., Philadelphia, Pa. 1911.

Trumbull, J. H., Plainville, Conn. 1911.

Tyler, John G., 1114 Belmont Ave., Fresno. 1905.

Ulrich, Al G., 3307 Washington Ave., St. Louis, Mo. 1909.

Unglish, W. E., Gilroy. 1910.

Van Fleet, Clark C., 2020 Pacific Ave., San Francisco. 1906.

Van Rossem, Adrian, 223 N. Orange Grove Ave., Pasadena. 1909.

Visher, Prof. Stephen Sargent, Forestburg, So. Dakota. 1911.

Walker, Alex, Armour, So. Dakota. 1911.

Walker, Ernest P., Montrose, Colorado. 1910.

Warren, E. R., 20 W. Caramillo St., Colorado Springs Colo. 1909.

Waterman, Miss Edith S., 728 Paru St., Alameda. 1906.

Wear, Miss Winifred N., 2448 Monterey St., Fresno. 1909.

Weber, H. B., Simi. 1910.

Weed, Benj., 1950 Jones St., San Francisco. 1911.

Wells, Gurnie, R. F. D. 6, Box 73, Santa Rosa. 1911.

Wetmore, Alex., Museum, Lawrence, Kansas. 1909.

Wheeler, Roswell S., 296 Park View Terrace, Oakland. 1894.

Wheelock, Mrs. H. B., 1040 Hinman Ave., Evanston, Ill. 1909.

Whitman, C. O., Univ. of Chicago, Chicago. Ill. 1909.

Widmann, Otto, 5105 Morgan St., St. Louis, Mo. 1904.

Wilcox, Arthur, Santa Maria. 1908.

Wilder, H. E., Riverside. 1909.

Willard, B. G., Box 107, Millis, Mass. 1910.

Willard, F. C., Tombstone, Arizona. 1905.

Willett, George, 2123 Court St., Los Angeles 1905.

Wood, J. Claire, 179 17th St., Detroit, Mich. 1909.

Woodruff, Frank M., Chicago Academy of Sciences, Lincoln Park, Chicago, Ill. 1906.

Wright, Frank S., 14 Cayuga St., Auburn, N. Y. 1910.

Wright, Howard W., 830 N. Orange Grove Ave., Pasadena. 1907.

Wueste, Rudolph, Morena Dam, San Diego. 1901.

Wymann, L. E., R. D. 3, Nampa, Idaho. 1908.

Zahn, Otto J., 2115 Estrella Ave., Los Angeles. 1896.

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